

MAY 1958

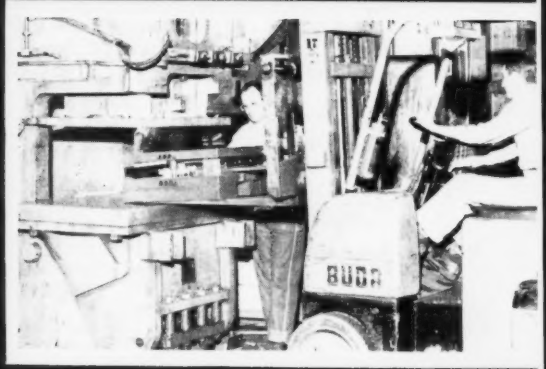
# MPM

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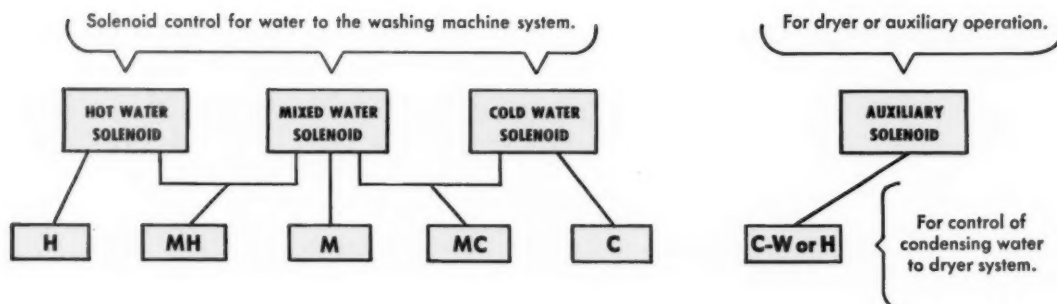
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Furniture Manufacturing  
Industry*



it's **NEW** . . . the only valve especially  
designed for combination  
washer-dryers



Now it's possible to add a greater range of temperature selection to automatic washer-dryers for the ultimate in improved performance.

The new M-45 Detroit thermostatic water mixing valve now enables you to design an automatic washer-dryer with 5 temperatures plus 1 auxiliary temperature

for operation of dryer condenser or accessories.

Like all other Detroit Thermostatic Water Mixing Valves, the M-45 incorporates the Vernatherm® element, developed and engineered by Detroit Controls.

Our development staff will gladly cooperate with you to give you full information about this new valve.

\*The Vernatherm® element is the heart of Detroit M-45 thermostatic water mixing valve.



5900 Trumbull Avenue  
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**DETROIT CONTROLS**

Division of **AMERICAN-Standard**





# Here's how special Armco Steels in vending machines help gain Balanced Design

High quality materials and *balanced design* are essential to long service life and trouble-free operation of vending machines. This is why Glascock Bros. Mfg. Co., Muncie, Indiana, the manufacturer of a well-known pre-mix vendor, uses special Armco Steels for many parts in their machines.

For example, parts that might be splashed by liquids are made of Armco ZINCGRIP® Steel (Bonderized and painted by Glascock Bros.). The special hot-dip zinc coating on the steel doesn't flake or peel... still protects the base metal against corrosion even if the paint is damaged.

To promote cleanliness, the cup-storage compartment is also made of Armco ZINCGRIP Steel. So are the covers for the highly complex vending mechanisms, as well as the baffle and outer shell for the refrigeration unit.

## Armco Stainless Steel, Too

Parts that must withstand both corrosion and abrasion are made of Type 302 (Armco 18-8) Stainless Steel. And of course, all metal that comes into direct contact with the product is stainless steel, including the portable product tanks.

For complete information on special Armco Steels that can help you give *your* products balanced design and new selling points, just write us at the address below. Our engineers will gladly consult with you on special problems.



## ARMCO STEEL

ARMCO STEEL CORPORATION • 2118 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION



THERE MUST BE A GOOD REASON WHY  
A HIGH PERCENTAGE OF IMPORTANT  
HEATER MANUFACTURERS ARE USING



FRITS

FOR colored ground coats



only WHEN YOU COMBINE  
SCIENTIFIC KNOWLEDGE WITH  
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genuine know-how.

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out with our own job enameling plant technicians  
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- A wide range of colors
- Lower % of recoats
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- More workability



We would welcome the opportunity, without  
obligation, to prove to you that you too can  
gain from this valuable "Know How."

**INGRAM-RICHARDSON, INC.**  
OFFICES, LABORATORY AND PLANT  
FRANKFORT, INDIANA

# MPM

(including finish)

**MONTHLY TRADE PUBLICATION**

Established January 1944

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## FEATURES

	Page
<b>HOTPOINT LOWERS PORCELAIN ENAMEL FIRING TEMPERATURES</b> an MPM Staff Feature.....	26
<b>GAMA COMES OUT FIGHTING</b> a Report on the White Sulfur Springs Meeting.....	28
<b>SPECIAL SECTION AUTOMATIC MERCHANDISING INDUSTRY..</b>	33
A REPORT ON THE AUTOMATIC MERCHANDISING INDUSTRY by C. S. Darling.....	V-4
AUTOMATIC MERCHANDISING A "GROWTH INDUSTRY" by Wm. S. Fishman.....	V-5
THE LATEST IN AUTOMATIC MERCHANDISING MACHINES.....	V-6
FUTURE OF THE AUTOMATIC MERCHANDISING INDUSTRY Comments by Manufacturing Executives.....	V-10
WHAT'S NEW IN AUTOMATIC MERCHANDISING COMPONENTS.....	V-12
PRODUCTION PLANNING AT VENDO.....	V-14
PRESSES AVERAGE TWO DIE CHANGES DAILY.....	V-16
ORGANIC FINISHING AT VENDO.....	V-18
SYNCHRONIZATION—THE KEY TO ASSEMBLY OPERATIONS.....	V-23
CHANGE MAKER WITH A "MAGIC BRAIN".....	V-26
<b>COST ESTIMATING DATA FOR PRODUCTION OF PORCELAIN     ENAMEL ON ALUMINUM .....</b>	66
<b>SAFE TRANSIT .....</b>	87
<b>PACKAGING AUTOMATIC MERCHANDISING MACHINES.....</b>	88

## DEPARTMENTS

<b>INDUSTRY MEETINGS .....</b>	6
<b>EDITOR'S MAIL .....</b>	12
<b>FINISH LINE EDITORIAL .....</b>	22
<b>NEW PRODUCTS .....</b>	69
<b>COMING MPM FEATURES .....</b>	70
<b>NEW LITERATURE .....</b>	71
<b>INDUSTRY NEWS .....</b>	74
<b>SUPPLIER NEWS .....</b>	82
<b>INDUSTRY PERSONALS .....</b>	84
<b>SUPPLIER PERSONALS .....</b>	85
<b>MPM STATISTICS .....</b>	90
<b>PRESS TIME NEWS .....</b>	91
<b>ADVERTISER'S INDEX AND CLASSIFIED .....</b>	92

## METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$8.00 per year, domestic. To all other countries \$10.00 per year (U.S. funds). Single copies, \$1.00.

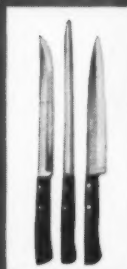
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# How to fabricate Stainless Steel for profit



**REPUBLIC ELECTRUNITE® STAINLESS STEEL TUBING** improves sales and profits for appliance manufacturers. A simple 2½-inch bearing liner for an automatic washer made of ELECTRUNITE tubing provides greater true concentricity. There is no need for buying a heavier wall and then spending more money to remove stock. ELECTRUNITE can cut costs, improve the quality and performance of your products. Send coupon for details.





It may be easier than you think, even in today's highly competitive market, to turn sales resistance to sales insistence. How? Build into your product all the sales potential of stainless steel.

Your customers recognize stainless steel as a sign of quality . . . and stainless is so easy to sell. It doesn't tarnish; resists rust and corrosion; has no applied surface to chip, peel, or wear away. It's easy to clean and keep clean. Stainless is always bright, all ways right.

With the use of this aristocrat of metals your product will have eye-appeal, buy-appeal, and built-in sales advantages never before experienced.

The key to successful stainless steel fabrica-

tion is in practical know-how, in knowing the characteristics of the metal and how they affect various operations. All the information you need on how to fabricate stainless steel for profit—the proper design and use of equipment—is contained in the three books shown below: "Stainless Steel in Product Design," "How to Fabricate Republic ENDURO Stainless Steel," and "Welding Republic ENDURO Stainless Steel."

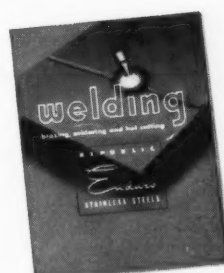
Why not get started in high profit, stainless steel fabrication. Republic metallurgists and engineers will assist you in selection, application, and processing of ENDURO Stainless Steel. There's no obligation. Get the facts, mail the coupon today.



"Stainless Steel in Product Design" is a comprehensive 40-page book, outlining, in detail where and how to use stainless steel so that it more than justifies its slight additional cost.



"How to Fabricate Republic ENDURO Stainless Steel" contains 36 pages of detailed text on all phases of stainless steel fabrication. Photos show you step-by-step procedure.



"Welding Republic ENDURO Stainless Steel" is a 54-page, 2-color book containing approved and complete technical data on welding, brazing, soldering, and hot cutting of stainless steel.

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Send a copy of:

- ☐ "Stainless Steel in Product Design"
- ☐ "How to Fabricate Republic ENDURO® Stainless Steel"
- ☐ "Welding Republic ENDURO Stainless Steel"

Send more information on:

- ☐ ELECTRUNITE Stainless Steel Tubing
- ☐ Continuous Galvanized Sheets

Name \_\_\_\_\_ Title \_\_\_\_\_

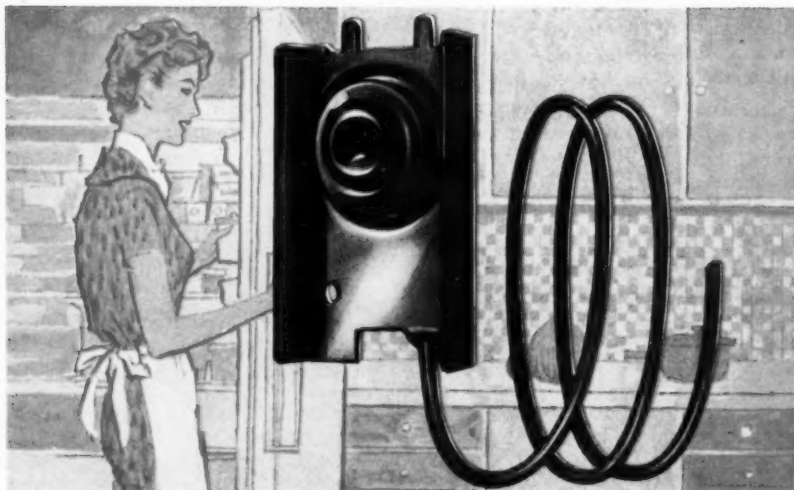
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# BRIDGEPORT'S LOW-COST ANSWERS

to your temperature sensor\* needs!



**\*BELLOWS** assemblies provide accurate control with no drift for your cold or heat sensing applications such as oven and refrigerator controls. They simplify design, cut assembly costs, save space and weight and replace costlier sensing devices. Custom-engineered as a complete "package" in many metals. WRITE FOR BELLOWS BULLETIN K-105!



**\*DIASTAT** assemblies eliminate the need for ambient temperature compensating devices in many applications. These low-cost stainless steel "packaged" units offer extreme accuracy with no resetting at temperatures up to 650°F . . . used in appliances and other controls where a short stroke is desired. WRITE FOR DIASTAT BULLETIN K-605!



**Robertshaw-Fulton**  
CONTROLS COMPANY

**BRIDGEPORT THERMOSTAT DIVISION • Milford, Conn.**

## INDUSTRY MEETINGS

### AIR CONDITIONING

Air-Conditioning & Refrigeration Institute's Annual Meeting, The Homestead, Hot Springs, Va., May 4-7, 1958.

### METAL EXPOSITION

American Society for Metals First Southwestern Metal Exposition and Congress, State Fair Grounds, Dallas, Texas, May 12-16, 1958.

### PORCELAIN ENAMEL

Porcelain Enamel Institute's Midyear Divisional Conference, Edgewater Beach Hotel, Chicago, Ill., May 13-14, 1958.

### INDUSTRIAL HEATING

Industrial Heating Equipment Association, The Homestead, Hot Springs, Va., May 18-21, 1958.

### ELECTROPLATERS

45th Annual Convention of the American Electroplaters' Society, Sheraton-Gibson Hotel, Cincinnati, Ohio, May 18-22, 1958.

### PACKAGING CONFERENCE

American Management Association's National Packaging Conference, Hotel Statler, New York City, May 26-28, 1958.

### PACKAGING EXPOSITION

American Management Association's National Packaging Exposition, Coliseum, New York City, May 26-30, 1958.

### APPLIANCES

Institute of Appliance Manufacturers' Annual Convention and Exhibit, Netherland-Hilton Hotel, Cincinnati, Ohio, June 1-4, 1958.

### AUTOMATION

4th International Automation Exposition and Congress, Coliseum, New York, June 9-13, 1958.

### HOME FURNISHINGS

International Home Furnishings Market, The Merchandise Mart, Chicago, Ill., June 16-27, 1958.

### MATERIALS TESTING

American Society for Testing Materials Annual Meeting, Statler Hotel, Boston, Mass., June 22-27, 1958.

### HEATING, REFRIGERATION

American Society of Heating and Air-Conditioning Engineers, Inc., and American Society of Refrigerating Engineers Joint Meeting, Leamington Hotel, Minneapolis, Minn., June 23-25, 1958.

# Better Finish for Reconditioned Drums

with  
**BURDETT**  
*"Radiant Heat"*  
**OVEN**

A new Burdett "Radiant Heat" Oven  
solved  
a difficult heat processing problem  
for Geo. P. Garrett & Sons  
of Baltimore, Md.

A conventional convection type oven was used to bake reconditioned steel drums sprayed with a special phenolic resin emulsion so they could be used in packaging edibles, chemicals, and other high acidity products. Results were highly irregular and not up to the exacting specifications required.

This new Burdett 50-foot, gas fired, radiant heat, recirculating oven was installed and is producing excellent results over a wide range of operating temperatures. The Radiant Heat Combustion System brings the work to selected operating temperature in half the normally required time and maintains it uniformly throughout the oven by a specially designed recirculating system.

Whether you are considering a completely new finishing system, an addition to your present layout, or the renovating of your old system, consult Burdett for the engineering answer with the bonus values—either radiant or convection.



Reconditioned Steel Drums being sprayed with special emulsion of phenolic resins for use with high acidity products. Drums are entering new Burdett oven at Geo. P. Garrett & Sons, Baltimore, Md.



Interior of Burdett Radiant Recirculating "Dual Heat Oven," showing the radiant gas burners located on each side of conveyor.

**Write for the Burdett story!**

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MANUFACTURING COMPANY

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DETROIT PHILADELPHIA NEW YORK CLEVELAND DALLAS

Manufacturers of  
COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT" SYSTEMS, OVENS, HEATERS,  
AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

SEE OUR CATALOG  
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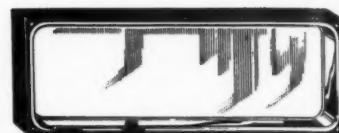
# SUNRAY . . . another user of PERMA-VIEW WINDOWS



ROUND



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RECTANGULAR



TRAPEZOID

*We can manufacture any shape, any size, any thickness to meet your engineering requirements. Alternate methods of attachment may be used.*

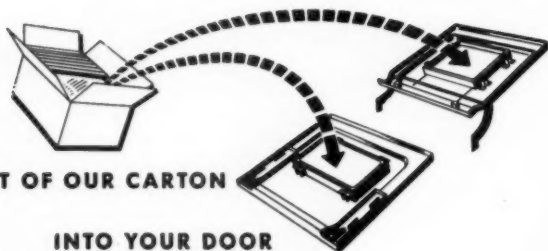
THE SUNRAY STOVE CO.

—one of the

61 leading range manufacturers

using

PERMA-VIEW oven-door windows



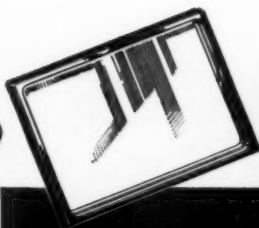
OUT OF OUR CARTON

INTO YOUR DOOR

The strong steel encased, double pane PERMA-VIEW window incorporates the finest quality heat resisting glass. It is mechanically sealed to prevent infiltration of vapors and to eliminate "fogging." This "No-Fog" window meets the constantly growing demand for "visible baking."

Mr. George E. Mumma, President, The Sunray Stove Co., has this to say about the PERMA-VIEW windows:

"PERMA-VIEW windows are one of the valued selling features on our Sunray Ranges. They are used as standard equipment on our new 'TOUCH OF TOMORROW' . . . Push Button, Remote Control Gas Range."



## MILLS PRODUCTS INCORPORATED

1015 WEST MAPLE ROAD

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Under construction—Trenton, Michigan, Plant

## McLouth Blast Furnace No. 2

The second major expansion in four years is nearing completion at McLouth Steel.

We are again adding to our facilities to bring you better steels for the product you make today . . . and the product you plan for tomorrow.

## McLOUTH STEEL CORPORATION

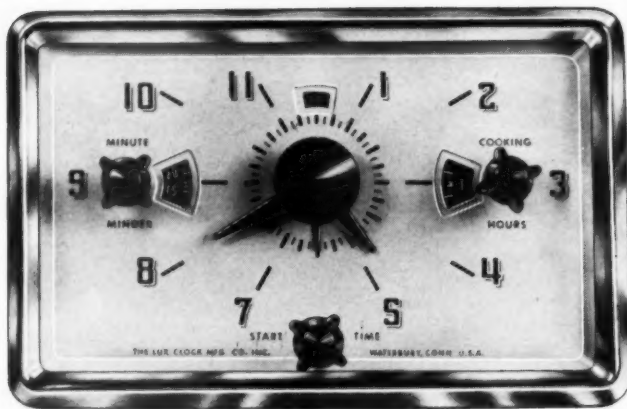
Detroit 17, Michigan

Manufacturers of high quality stainless and carbon steels.

a page full  
of preference  
for

**LUX**

**timers**

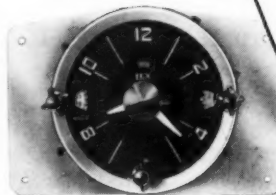


Hundreds of leading appliance manufacturers prefer these field-proven LUX Range Timers... unrivaled for their complete dependability, accuracy, and simplicity of use.

Combining the latest in engineering design with operation by Lux's improved synchronous motor equipped with Lube-Less bearings, LUX timers offer these sales plusses:

- EXCLUSIVE ONE KNOB "COOK-NOW" TIMING
- SEPARATE MINUTE MINDER TOP-SIDE CONTROL
- "ANY ANGLE" APPLICATION
- COMPACT SIZE
- SIMPLICITY IN SETTING

The precision performance of LUX Timers can be matched only by using LUX features.



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**THE LUX CLOCK MFG. CO., INC.**

WATERBURY 20, CONNECTICUT



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Gurney

**O'KEEFE & MERRITT**

**Orbon RANGES**

Royal Rose Ranges

*Chef's Delight*

*Modern Maid*



Chambers  
COOKS WITH THE GAS TURNED OFF

**VESTA**  
Gas Ranges

BROWN STOVE WORKS, INC.

*Home Comfort*

chef master

HARDWICK STOVE COMPANY

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*Enterprise*



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*Anticorax*

JAI-ALAI  
ACE  
FAILS  
TO FLAKE  
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TI-CO



### FABRICATION WON'T FLAKE TI-CO EITHER

A jai-alai ball travels at speeds over 100 m.p.h.—hits with terrific impact. From a distance of only 60 feet, one of Mexico's leading jai-alai players, Jose Fuerto, slammed the ball into a TI-CO Galvanized Sheet again and again—severely pounding it—but there wasn't a sign of flaking!

In your manufacturing operations, TI-CO can be deep drawn, stamped, bent, crimped, lock-seamed, even spin-drawn, without flaking or peeling. In fact, any product that can be made from cold rolled steel can be made from TI-CO, giving your product dependable protection against corrosion and an eye-appealing finish that can mean stepped-up saleability.

If you are designing or manufacturing a metal product that requires rugged strength plus corrosion resistance, you'll find TI-CO Galvanized Sheets the practical and economical solution. Coils or cut lengths up to 60" widths; gages 8 to 30 inclusive. Consult your local steel distributor or Inland representative. Write today for a free, informative booklet on TI-CO.



**INLAND  
STEEL**

INLAND STEEL COMPANY

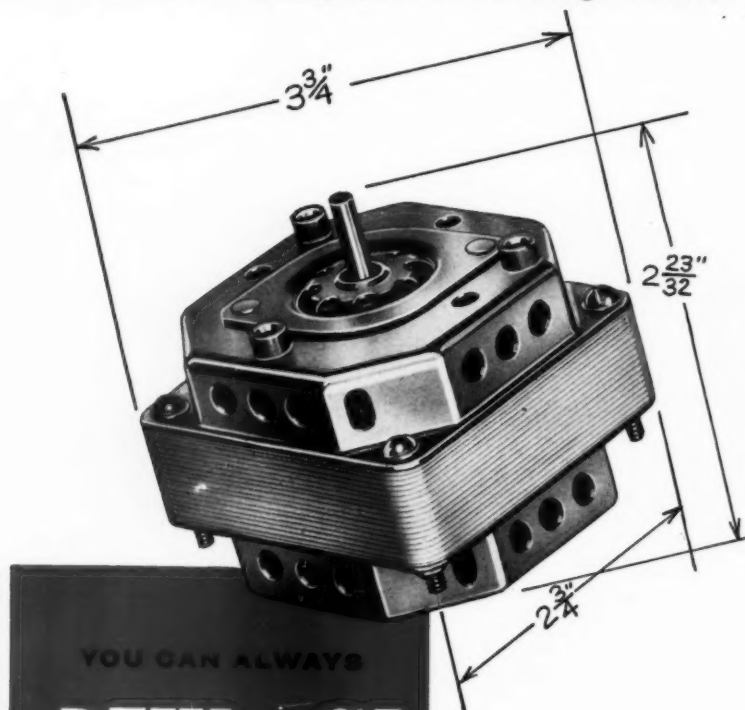
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with outstanding power-to-weight ratio

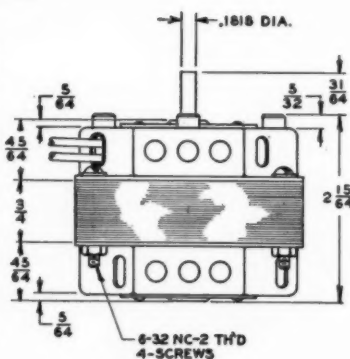


YOU CAN ALWAYS  
**RELY on GI**  
Fractional H. P. Motors  
1/40 H. P. TO 1/1000 H. P.

## MODEL E

4 Pole, Shaded Pole  
AC Induction  
Type Motor  
1/240 H.P.

Exceptionally smooth and silent, the Model E is widely used in high quality tape recorders, record changers, and complete motor assemblies in hi-fi units. It is also readily adaptable to many other applications, such as business machines, vending machines, advertising displays, juke boxes, etc. Mechanically and electrically symmetrical for minimum stray field radiation. A superior motor with the added advantage of GI's mass-production economy.



Write Today For Quantity-Price Quotations!

**THE GENERAL INDUSTRIES CO.**  
DEPT. GF • ELYRIA, OHIO



### Servel still in business

Gentlemen: Thank you for your letter of March 13 in which you advised that Servel's name has been dropped from your mailing list as a result of Servel being sold to Whirlpool Corp.

We would like to advise you that Servel has not gone out of business. What we sold to Whirlpool was a small portion of our assets that were used in the manufacture of absorption refrigerators; however, Servel, as such, is very much in business and we will very shortly be in other fields of endeavor.

In view of the above, we feel that your publication, METAL PRODUCTS MANUFACTURING, would be of some service to us and, if you so desire to send us same, we would greatly appreciate it. For your convenience, we have filled out the form attached to your letter and are returning same herewith.

W. A. Smith, Director of Purchases  
Servel, Inc., Evansville, Ind.

Gentlemen: We have your letter of March 13 in which you make inquiry as to whether or not I wish to continue to receive METAL PRODUCTS MANUFACTURING. I would be pleased to continue to receive the publication, and I am enclosing the form which was attached to your letter.

I notice you say, and I quote, "Servel has been sold to Whirlpool." I am sure you meant that only as a general statement because you undoubtedly know that we sold to Whirlpool only a substantial portion of the manufacturing facilities of the Home Appliance Division of Servel.

John H. Wall, Executive Vice President  
Servel, Inc., Evansville, Ind.

Ed. Note: Our circulation department was a little too thorough. Because of the recent sale of a portion of Servel to Whirlpool, all names on the mailing list at Servel were checked to determine if they still qualified, and wanted to continue to receive MPM. As can be seen from these two examples, Servel is still in business, and key men are still very much interested in wanting to receive MPM.

### Deems MPM valuable

Gentlemen: A copy of your magazine at Phil Rich Fan Manufacturing Company attracted my attention and I was extremely interested in it.

We are engaged in the manufacture of air conditioning equipment and I believe your magazine would be valuable to us. May we be put on your mailing list?

Marvin H. Dace  
President & Gen. Mgr.  
Valmatic Corp.  
Houston, Tex.  
to Page 65 →





everyone agrees...

## HOMMEL QUALITY

### *Low Temperature Porcelain Enamel*

#### **FRITS** offer

#### *Increased Profit ADVANTAGES*

- ★ REDUCED FUEL COSTS ★ LONGER FURNACE LIFE
- ★ LOWER MAINTENANCE COSTS
- ★ FREEDOM FROM WARPAGE ★ LOW TOOL COSTS
- ★ IMPROVED COVERAGE
- ★ SAVINGS ON REFRACTORY BRICK ★ TOP QUALITY FINISHES
- ★ PRODUCTION COST SAVINGS WITH LIGHTER GAUGES—NON-PREMIUM METALS

These . . . and other advantages . . . are yours  
when you use O. Hommel "performance tested" Low Temperature  
porcelain enamel frits. Try them yourself and see how  
you'll be dollars ahead. Ask your Hommel representative to  
demonstrate these "years ahead", tried and proven frits . . . or write . . .

*"The World's Most Complete Ceramic Supplier"*

THE **O. HOMMEL** COMPANY  
Dept. MPM-558 PITTSBURGH 30, PA.  
WEST COAST—4747 E. 49th STREET, LOS ANGELES, CALIFORNIA



Photo Courtesy Binks Mfg. Co.

## SPRAY BOOTH COMPOUNDS BY KERNS

Whether your particular problem requires a wet or dry spray booth compound a Kerns *technical service* representative will be pleased to help you. If you are interested in a wet type compound we suggest you write us regarding K 3986. It is presently being used for both prime and finish coats in the appliance, automotive and other fields. It performs well with a wide variety of finishes.

As manufacturing chemists and producers of *specialized* compounds, we offer our technical services to the appliance and fabricated metal products field. Phone for a personal contact or mail the details of your problem to our Technical Service Department for *quick action*.

**PRODUCERS OF:** Drawing Compounds—Cutting Compounds—Forging Compounds  
—Grinding Compounds—Phosphatizing Compounds—Wire Drawing Compounds—Rope and  
Twine Compounds—Cleaning Compounds—Cling Oils—Rolling Oils—Rust Preventives—  
Wire Rope Lubricants—Specialized Greases—Spray Booth Compounds.



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2659 East 95th Street

Chicago 17, Illinois

Subsidiary Plant

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630 N. Batavia Street

Orange, California

Offices in principal cities throughout the U. S. A.



**The lighter side of porcelain enamel . . .** titania enamels in lighter coating weights for lighter gauge metals . . . is best provided by TITANOX\*.TG and TITANOX-TG-400, the titanium dioxides made especially for these modern porcelain enamels.

The controlled chemical composition of these dioxides, plus physical qualities of low bulk and free flow, contribute to efficient production of high quality frits. For highest reflecting whites, TITANOX-TG is usually preferred; for blue-whites, TITANOX-TG-400. TITANOX-TG is recommended for colored titania enamels. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

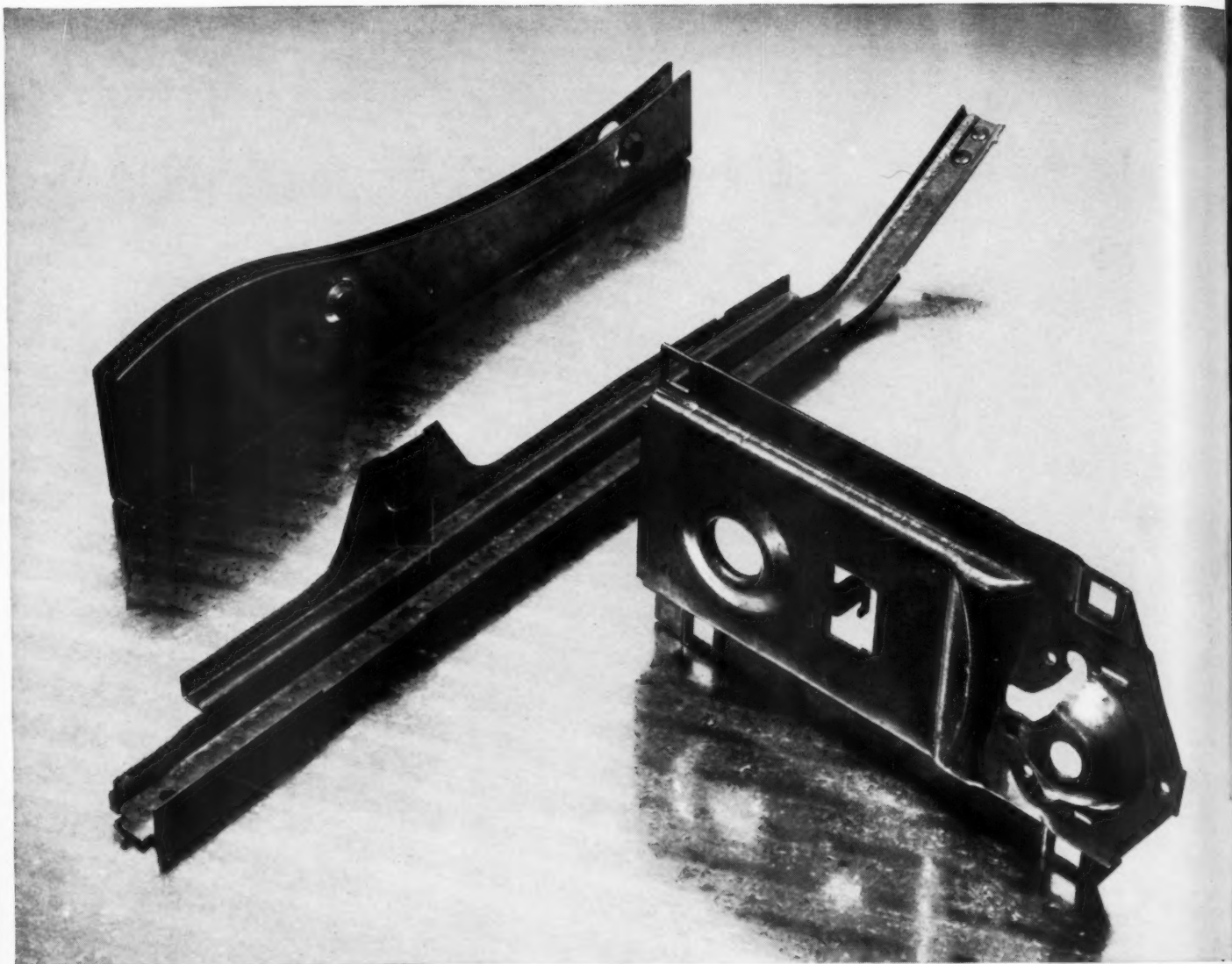
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**TITANIUM PIGMENT CORPORATION**

*Subsidiary of NATIONAL LEAD COMPANY*

\*TITANOX is a registered trademark for the full line of titanium pigments offered by Titanium Pigment Corporation.



## WHEN WEIRKOTE® GOES ON THE JOB, PLATING OPERATIONS CAN GO OUT THE WINDOW.

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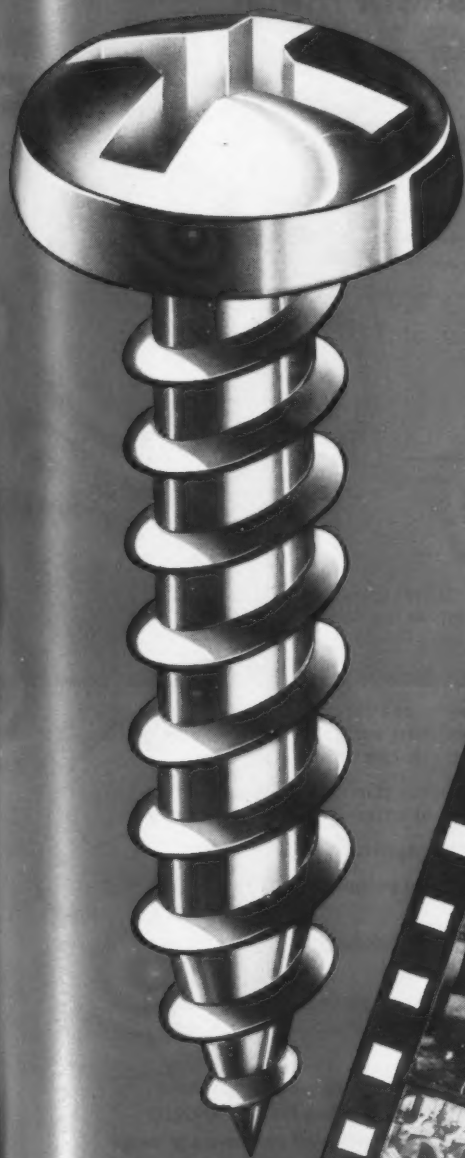
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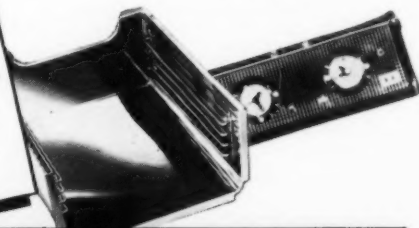
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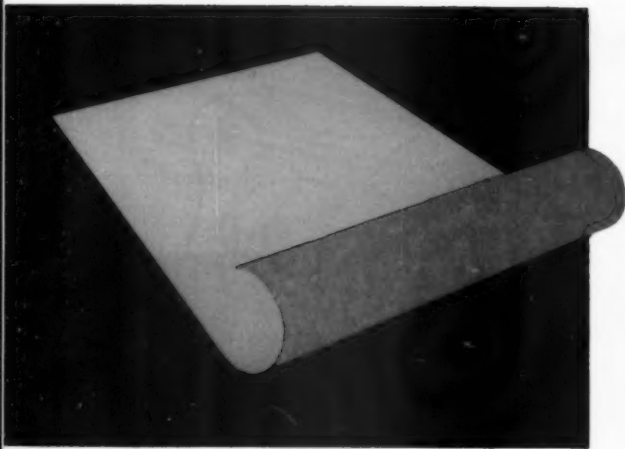
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Now . . . to all the advantages of

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add lifetime **COLOR!**

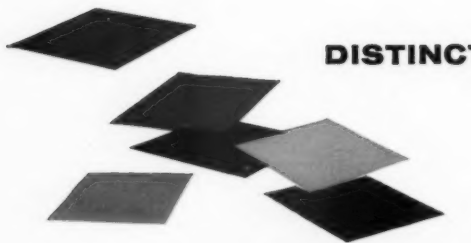


The "wedding" of two *lifetime* materials—Aluminum and Porcelain enamel—can well revolutionize a host of businesses, bring major changes to a number of industries.

Wherever *appearance* is important, users of aluminum will want to take a good hard look at this new development. And users of other metals, too, will do well to investigate the potentials in this new combination of materials. To the lightweight and anticorrosive qualities of aluminum can now be added the sales stimulating power of *color*. Color as permanent as the metal to which it is fused.

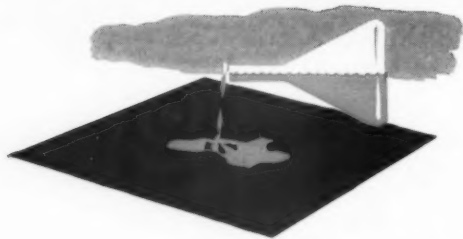
A broad range of colors is yours to choose from in this new porcelain enameling process. Flat sheets, extrusions, formed shapes and castings can be thus treated. Even *welded* assemblies can be porcelain enameled.

## DISTINCTIVE PROPERTIES OF PORCELAIN ENAMEL



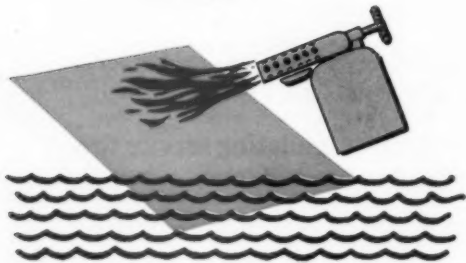
### *Surface Texture and Color*

Almost any degree of surface reflectivity is possible, from dull matte to extremely high gloss. Surface variations are innumerable. You can choose from a wide range of light-fast colors; and the durable "glass-like" finish minimizes maintenance problems.



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Panels heated to 1,000° F, then plunged into cold water, show no cracking or flaking of the porcelain enamel surface.

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***Youngstown***

**METAL PRODUCTS COMPANY**

**Youngstown 1, Ohio**



# THE finish LINE

## RESPONSE TO "WHERE DOES SERVICE START"

Dear Mr. Chase:

..... comment on your editorial appearing in the March issue of METAL PRODUCTS MANUFACTURING. We are inclined to agree with Mrs. Kendall. (Finish Line, April MPM, page 19.) There has certainly been a great deal of 'viewing with alarm' and a lot of hand-wringing and finger-pointing ..... but very little constructive effort or honest analysis.

I, too, have heard the industrial gossip that is making the rounds. One informant passed along the information that 'a certain manufacturer (name unknown, of course) is actually building stoves to last only eighteen months.' This, to me, is utterly ridiculous. How could any manufacturer, great or small, convince himself that it is economically sound to deliberately limit the life of his product to a period of less duration than the life of his competitor's product?

Let us suppose that you purchased an appliance — any kind — and, at the end of eighteen months, it fell into a heap. Would you immediately bustle out and replace it with another one made by the same manufacturer?

Perhaps the anticipation of a constantly expanding market for goods of this kind has engendered the philosophy of 'one sale to a customer and his satisfaction be damned' in some isolated instances ..... but I doubt it.

There have always been price buyers and, I daresay, there always will be buyers who regard price only. In some thirteen years of industrial buying, I learned one hard fact: Bargains Generally Bust — and I've got the scars to prove it. As I understand it, the purchasing function is to buy the *specified item* from the best possible source at the best possible price.

The present economic squeeze on manufacturers dictates that buying be 'close', as to both quantity and price. *Conversely, the present bitterly competitive situation forbids the sacrifice of quality for that highly problematical fraction of a cent.*

Very truly yours,

**Paul E. Davis** • PRODUCTION MANAGER  
Chambers Manufacturing Corporation

Note: Italics added by MPM editors.

Dear Mr. Chase:

I can assure you that as a company we are acutely aware of the supreme importance of customer service to our success in this highly competitive business. We look upon customer service as including the functional quality of the appliance as it is delivered from factory to customer's home, its proper installation, and efficient maintenance service. Each aspect is of the first order of importance in our planning for this company's operation.

From the standpoint of quality in manufacturing I can assure you that each of our manufacturing organizations, as well as our engineering functions, operate under an emphatically stated and rigidly enforced dictum that cost reduction objectives must not be pursued at the least risk of downgrading product quality by shortening its functional life, or otherwise. Enforcement of established quality standards in purchase of components, processing, and fabrication is the prime responsibility of supervision in each of the areas. Inspection organizations, operating independently of the production arm, are charged with seeing that these supervisory responsibilities are fulfilled to the full extent of our ability to do so.

We recognize fully that the growing complexity of our product imposes additional hazards in design and functional quality, as well as added difficulties in securing satisfactory service in the field. In both areas, we pursue constantly and energetically the goal of eliminating every source of customer dissatisfaction.

Very truly yours,

**D. W. Alexander** • VICE-PRESIDENT  
Whirlpool Corporation

Dear Mr. Chase:

I have just read the March issue of MPM and was particularly attracted to your editorial in the Finish Line. Your timely comments about service and quality in this day of price cutting emphasizes our own sentiments. We have attempted in our own small way to point out this situation to the purchasing departments of companies serviced by our sales force.

I think your article was very well written and expresses the beliefs of many companies in our industry. We personally have refused to join the "rat race" of price cutting, and your article has bolstered our faith. Please keep up the good work.

Very truly yours,

**Gil Reagan** • VICE-PRESIDENT  
Electro-Metals Corporation

Dear Mr. Chase:

..... I believe this article (March Finish Line Editorial), was very excellent, and very well done. It expresses my sentiments to a "T" and believe we should have more editorials along the same lines.

Furthermore, just to prove to you that METAL PRODUCTS MANUFACTURING is read in our organization, our Chief Engineer tore out this article and sent it down to my desk, to be sure that I read it. He also wanted to be sure that I complimented you on an excellent job. ....

Sincerely yours,

**Eugene T. Crandall** • INDUSTRIAL SALES  
MANAGER  
The Lux Clock Manufacturing Company

Dear Mr. Chase:

..... certainly agree that the service problem is one that cannot be discussed too often. It is my opinion that this is one of the important problems facing the appliance manufacturing industry today.

As a purchasing man, with many years experience behind me, I question whether a substantial number of purchasing executives consider price as the most important element of value. It has been my experience that the quality of the part or product, which in turn means a trouble-free operation, is every bit and often much more important than price alone. Purchasing people generally are very much aware of the final cost of a part or product and the possible damage to a manufacturer's reputation, when inferior materials are used.

In our own company we have many examples of where we pay a price premium for a product which we consider less expensive than purchasing a similar, minimum quality product at a lower cost. What I mean to convey is that purchases are not always made based on minimum specifications and lowest prices. The other elements of value, such as quality, trouble-free operation and long service, are extremely important factors in arriving at the final purchasing decision.

As a consumer I have personally encountered service problems for various end products and feel that you are "spot-lighting" a general problem which certainly could profit from improved handling.

Very truly yours,

**G. J. Papas** • DIRECTOR OF PURCHASING  
Rheem Manufacturing Company

Dear Mr. Chase:

Obviously, anyone with their ear to the ground as to consumer reaction must agree with your editorial.

I have another slant that perhaps you have considered, but I sometimes doubt that the homemaker — the owner — of an automatic washer and/or dryer always takes into

consideration, and that is the number of times a week an appliance of this kind is used today versus 10 years ago.

I am sure you remember that not so long ago surveys proved that a washer was used about 3 or 4 times a week. At that time a typical average family load of soiled clothes was 27 pounds — 33 or 34 pounds at the most. Thus, the washer was used 3 times — maybe 4 times — a week and usually wash day was Monday.

Today there seems to be plenty of indication that an automatic washer cycles nearly that often each day and many times 4, 5 or 6 days a week. Almost everyone would agree that usage has increased 400 or 500 per cent. Furthermore, the nature of articles and garments washed has changed materially.

Not long ago the laundry basket was largely made up of cottons, linens, and that's about all.

Today, the cottons and linens are still a basic part of the wash, but add to that drapes, men's suits, shag rugs, dozens of "wash and wear" items, ladies' coats, etc. The loads are heavier and far more frequent. This, I think we must all agree, contributes to shorter life.

I do not believe that laundry appliance manufacturers are guilty of building for mechanical obsolescence. Actually, this is a very competitive business and, as is the case with automobiles and many products, if a few manufacturers design, engineer and build to unrealistic specifications or to an impractical and unrealistic degree of quality, they might find themselves badly over-priced in the market place, and a serious question would evolve as to their ability to retain a position in the industry.

Additionally, I do not believe that there are many, if any, engineering departments or managements who have such control over purchasing that savings are being sought of a character that is certain to introduce poor quality and thus more service at the homeowner level.

In the final analysis, where this might occur, it is the responsibility of management.

In top level meetings held at EASY we are constantly stressing the subject of quality in the firm belief that an important part of tomorrow's volume must be the result of favorable comments by present owners.

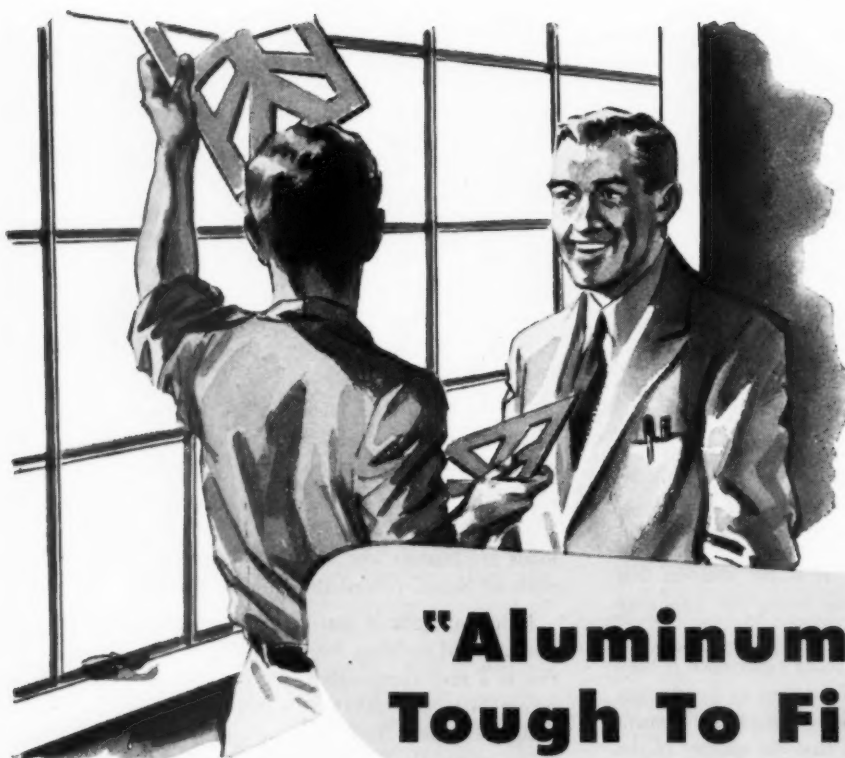
You have obviously touched upon a very important subject, which we all know is four-pronged — for an important part of this responsibility is the manufacturer's, but so too is an important part of this over-all responsibility in the hands of the distributor and/or the branch, the dealer and a serviceman, and finally, the owner-user.

\*The story which Helen Kendall has sent along to you, in my opinion, does a good job of placing this responsibility fairly.

Sincerely,

**Parker Erickson** • GENERAL MANAGER  
Easy Laundry Appliances Division  
The Murray Corporation of America

\*See "My Last Word on Appliance Service" Finish Line editorial by Helen W. Kendall in April 1958 MPM, page 19.



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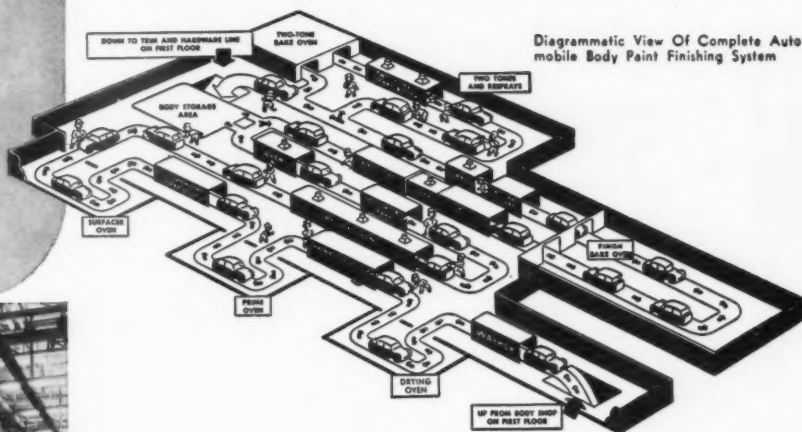


# ROSS

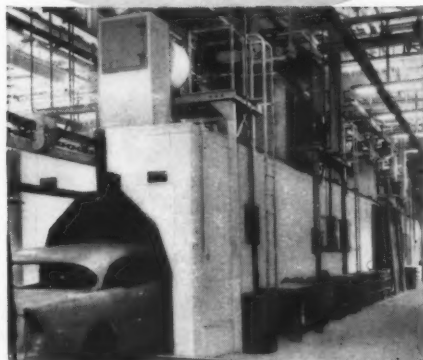
Air Systems

Engineered Atmospheres for Better Processing

## DIFFERENT DRYING AND BAKING OPERATIONS are needed to two-tone an automobile body



Diagrammatic View Of Complete Automobile Body Paint Finishing System



The outstanding Ross contribution to the automobile manufacturing business is the Ross Complete Paint Finishing System which takes the 'raw' car body from the body shop and delivers it completely surface-finished, ready for trim and hardware.

While the Ross System involves selection, integration and time scheduling of every step and of every piece of equipment including several types of spray booths, washers, phosphatizing units, conveying mechanisms and drives, *emphasis here is placed on the nine different dryers and baking ovens.* It is these nine operations that call for predetermined and carefully created 'Engineered Atmospheres', not merely enclosures with hot air blowing into them. It is in these dryers and ovens that the critical precision control work is done.

So much, briefly, about the work done by Ross Engineers in the Automotive field. Similar Ross Units and Systems can be found in all industries where high temperature work such as drying, baking, curing, conveying, washing, phosphatizing, air make-up and similar treatment is required... in industries such as paper, pulp, plastics, glass, foundries, textiles, rubber, chemicals, drugs, box-board, plywood. In these, one can find many different custom-designed Ross Systems and Units but in each a properly 'Engineered Atmosphere' is the common denominator... the *key* operating requirement.

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*Here the range bodies are transferred from the cover coat application conveyor to the furnace chain. Both cover coat and ground are fired in the same furnace, alternately, at 1420° F. and 1450° F., respectively.*

a progress report  
of the work done at  
Hotpoint to lower firing  
temperatures without  
reducing chain speeds  
or increasing length  
of hot zone in furnace

## Hotpoint lowers porcelain enamel firing temperatures

AN MPM STAFF FEATURE



**E**ARLY in 1957, a program was begun at Hotpoint to lower firing temperatures from the 1500-1550° F. range to the 1400-1450°

F. range. The advantages in lowering temperatures by such an amount, especially in the type and thicknesses of steels used, should be evident to all enamblers. Freedom of design is another important advantage. Less bracing is required, and more cutouts are permissible at lower firing temperatures.

The basic requirement of this program was that production rates had to be maintained. Chain speeds could not be reduced, nor could the hot zone of the furnace be increased in length.

This article was written in collaboration with Edward Sharf, Enamel Consultant, and Griffin Terry, Ceramic Engineer, of Hotpoint's Kitchen Appliance Dept., who have supervised the low temperature porcelain enamel program in the Range Section. Jack Bales, Control Supervisor in the Enamel Section, also assisted.

All of the work done at Hotpoint was in the range section. The parts in the program included range bodies only, throughout the early development work. Bodies are now being produced in normal quantities under the usual plant conditions at temperatures of 1450° F. on ground coat, and 1420° F. on cover coats. Door panels and oven linings will be produced at these temperatures as

soon as additional development work is completed.

### Blend frits

In the early development work in the plant, probably as many as forty or fifty different frit combinations were tried to develop a good ground coat. Most of this work actually was on a laboratory basis with intermittent trials on the production line. One of the ground coat problems, in the early days of testing, was a low yield in one-coat white, commonly called "black specking." Part of the low yield was caused by salt lines in ground coat on radii. This yield, which was as low as 60 to 70 per cent, has since been raised to 90 per cent.

Workmen here are placing range bodies on the conveyor feeding parts to the spray application booths. The carrier here is mounted on swivel base for convenience in spraying and subsequent brushing operations.

White frits, and frits used for colored enamels, were formulated by suppliers to mature at 1420° F. Some difficulty was experienced in both ground and cover coat slips in loss of set after relatively-brief aging intervals. This was corrected by adjusting mill additions and subsequent slip additions. These corrections aided in the elimination of the salt line defect.

#### Chain speeds

Chain speeds through the furnace are as follows: 15 ft. per minute at 1450° F. for ground coat, and 18½ ft. per minute at 1420° F. for cover coat. These speeds are for travel through a 64-ft. long hot zone in the furnace. The chain speeds and the furnace hot zone length remain at the same level as when the higher temperatures were processed. All that needed to be changed from the old to the new were the enamels themselves.

#### Raise nickel deposition

During the early experimentation period it was found that nickel deposition had to be raised from 0.010 to almost 0.040 gram per square foot.

Hotpoint engineers feel that the reduction of from 80° to 90° F. in firing temperatures for ranges is a definite step in the right direction. It is a step that, when it becomes general, can result in important savings for the home appliance industry.

Developments to date at Hotpoint are merely part of a long range program in lowering firing temperatures. It must be emphasized that the lowering of firing temperatures does not mean lowering quality in the slightest, nor does it mean that production facilities are altered in any way. Furthermore, production rates have not been affected in the slightest.

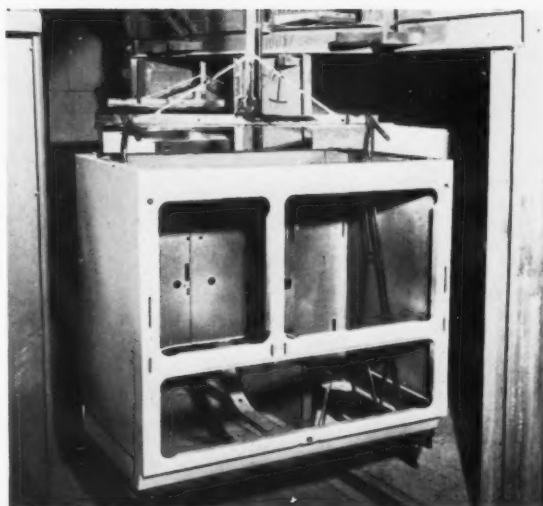
Product designers have long been pleading for enameling temperatures that would reduce the necessity for extra bracing and special design requirements not required for other finishes. As the temperature requirements are lowered, manufacturers such as Hotpoint will continue to come closer to the designer's requirements.

*Ed Sharf, who directed the work in successfully reducing firing temperatures, and Jack Bales, who assisted, inspect one of the range bodies before it is delivered to assembly. Development work is nearly completed for production of doors and panels at lower temperatures.*



EXCLUSIVE MPM PHOTOS

*A view of a range body emerging from the furnace. Lower firing temperatures permit freedom of design in shapes and numbers of cutouts. Less bracing is required and types and gauges of steels used become more varied to choose from.*







Speakers at Tuesday morning breakfast are: (l. to r.) Harold Massey, managing director, GAMA; Wendell C. Davis, 2nd vice president, Cribben & Sexton Co.; A. W. Humm, advertising council; E. A. Norman, 1st vice president, Norman Products Co.; M. W. Jacobs, vice president, Pacific Lighting Corp.; C. S. Stackpole, managing director, AGA; and R. W. Otto, Laclede Gas Co., president, AGA.

## GAMA comes

23rd annual meeting of gas  
turers points the way

**M  
P  
M**  
EXCLUSIVE  
FEATURE

**GAS APPLIANCE MANUFACTURERS** and their suppliers met at the Greenbrier, White Sulphur Springs, W. Va., March 31 and April 1 and 2 for the twenty-third annual Gas Appliance Manufacturers Assn. meeting.

Chief speakers during the meeting sessions and at a press conference preceding the formal meetings refused to throw the spotlight on "recession" and "gloom." In contrast, the meat of principal presentations included an attitude of "we're going forward, not backward." All possible evidence was presented that would point up this attitude, including first quarter gains for some products, an all-time high in number of gas users, some gains against competitive products, and a much improved inventory situation, both at the manufacturer and dealer levels.

**CLIFFORD V. COONS**, GAMA president and executive vice president of Rheem Manufacturing Co., spearheaded a group of industry officials who spoke to the press and the membership on the plus factors in the present Gas Industry situation.

In brief, the GAMA president said:

"The gas industry now serves nearly 40,000,000 customers, more than 1,000,000 more than the preceding year's total. Approximately 37,000,000 of these are residential customers.

"During the first quarter of 1958, gas appliance shipments reached almost 2,000,000 units, equalling last year's

total, and bringing to 100,000,000 the number of gas appliances and gas equipment items now in use in U. S. homes. (Products included in the reference are: ranges, furnaces, boilers, conversion burners, direct heating equipment, wall and floor furnaces, water heaters, incinerators and dryers.)

"First quarter private housing starts accounted for more than half a million gas equipment installations, approximately equalling the 1957 figure.

"An average of 'three-plus' pieces of gas equipment is being installed in the average home, in contrast to a 'one-plus' average of a few years ago.

"GAMA members have reported that from 10 to 25-per cent of their output is now going to the rural farm, non-farm and 'ex-urban' markets, located beyond utility gas mains and using 'bottled gas.' This year's 'signs' point to a substantial increase in sales to bottled gas users. (There are over 8,500,000 liquified petroleum consumers.)

"An increase in consumer demand for built-in and top-of-the-line models of gas ranges should result in dollar volume for 1958 'equal or exceeding' 1957 levels despite a first quarter reduction in unit shipments.

"Shipments of gas central heating units, including warm-air furnaces, boilers and conversion burners, are running 'slightly ahead' of last year, which recorded delivery of nearly a million units.

Utility reports show that some cities have as many as 100,000 home-owners

and builders on local gas company lists for gas heat.

"Over 2,500,000 gas-fired automatic water heaters were shipped by the industry last year, and 1958 shipments are running about four per cent ahead.

"Gas clothes dryers, with a late start, have reduced the lead of competitive dryers from 1-to-3½ to a current 1-to-2, and further gains are expected during 1958.

"Eighty-three per cent of all ranges in home economics classrooms of public and private school systems in the U. S. now are gas operated. . . . electric cooking in classrooms of old school buildings is deterred by the high cost of re-wiring.

"This year marks the gas industry's entry as a major factor in the air conditioning field and a renewal of emphasis on the marketing of gas refrigerators.

"The Cleveland and Los Angeles laboratories of AGA have tested more than 5,000 new developments in gas equipment design and operation during the past year."

In closing his remarks, Coons pointed to "a salutary development in the gas appliance industry in the 'resurgence' of utilities to the promotion of gas equipment sales, and service teamwork with appliance dealers.

"Almost universally in our industry there is a greater tendency to promote and advertise, to research and develop new products and product improve-

(Left) Edward P. Hayes, C. A. Olsen Mfg. Co., acting chairman (joint meeting of House Heating). (Center) Edward A. Norman, Norman Products Co., GAMA 1st vice president. (Right) Harry Lasky, Pennsylvania Range Boiler Co., and Harold Massey, managing director, GAMA.





# es out fighting

gas appliance manufac-  
way to expanded appliance sales



Speakers at Tuesday morning breakfast are (l. to r.) Clifford V. Coons, Rheem Mfg. Co., GAMA president, H. Leigh Whitelaw, executive vice president, GAMA; S. F. Wilkstrom, director, advertising and promotion, AGA; F. E. Hodgdon, director, AGA laboratories; George H. Richards, GAMA legal counsel; and Stanley H. Hobson, Geo. D. Roper Corp., GAMA treasurer.

ments," he said. "We are strengthening our selling forces and working more closely with utilities, builders and customer industries."

HAROLD MASSEY, GAMA managing director, told the press that there had been a "sharp drop" in both manufacturer and dealer inventories. He also pointed out that distributors have changed their buying habits to the extent of "buying in shorter takes" — "less at a time but more frequently."

H. LEIGH WHITELAW, GAMA executive vice president, referred to industry benefits from the steady reform of building codes.

Water heaters are being discriminated against, in comparison with thousands of other plumbing items, by the existing excise tax on the heaters.

EDWARD P. HAYES, vice president, C. A. Olsen Manufacturing Co., Elyria, O., chairman of GAMA's gas furnace division, has estimated that shipments of warm air furnaces have increased about 2½ per cent over the first quarter of 1957. He expects his section of the industry to deliver "at least" 720,000 units during 1958.

E. T. SELIG, JR., Burnham Corp., Irvington, N. Y., chairman of the gas boiler division, is author of the statement that this year has thus far tied 1957, which represented the "highest gas boiler shipment total on record."

H. P. MUELLER, JR., sales vice president, Mueller Climatrol, Milwaukee, Wis., chairman of the gas conver-

sion burner division, authored the statement that this group is 1.8 per cent ahead of last year.

E. M. DOUTHAT, JR., sales manager, Locke Stove Co., Kansas City, Mo., chairman, direct heating equipment division, said "this year's modernization market will enable us to top 1957 shipments of more than 1,300,000 units."

JOHN P. WRIGHT, president, Geo. Roper Corp., Kankakee, Ill., chairman, domestic range division, said, "Our group has moved more than 400,000 ranges since Jan. 1. Our biggest potential is in the replacement market. . . . Obsolete stoves provide the key to our present market and for years to come."

T. B. MADOLE, Malleable Steel Range Mfg. Corp., South Bend, Ind., chairman, hotel, restaurant and commercial gas equipment division, authored this statement:

"We've concentrated a lot of talent on developing equipment that enables restaurateurs everywhere to handle more traffic more efficiently, and it has paid off."

DAVID C. CANNON, vice president and sales manager, Lawson Manufacturing Co., New Kensington, Pa., chairman, gas water heater division, referred, as did president Coons, to a gain of over four per cent in shipments for the first quarter — totaling over 650,000 units. "It looks like a 2,600,000 unit year."

JOHN W. BENSON, advertising manager for laundry equipment, Whirlpool Corp., St. Joseph, Mich., chairman, gas

clothes dryer division, reiterated the Coons' statement in regard to the closing of the gap between gas and competitive fuel dryers and predicted, "Continuation of this year's pace will close the ratio (1-to-2) still further."

At an 8:00 A.M. breakfast meeting on Tuesday, executives from GAMA's sister association, AGA, took the spotlight to outline AGA plans for research and promotion during the coming months.

C. S. STACKPOLE, AGA managing director, told a packed breakfast audience that the industry must spend more time, effort and money on sales and service than ever before.

He referred to the gas industry as the nation's fifth largest — a \$19,000,000,000 industry.

His guideposts to sales included in brief: (1) Building best possible products, at a price for profit, (2) alert membership, (3) cooperation with all other interested organizations, (4) building the desire to purchase, and (5) continuation of TV promotion.

Stackpole called for faster water heaters to meet claims of the oil heaters. He said there soon may be as many as five manufacturers of gas refrigerators.

There is, he said, a potential of 9.6 million gas product units in 1958.

One of the highlights of the meeting was the announcement that some time during 1958 there will be the announcement of the "SUPER-X" (fictitious name used) gas range, the Cadillac or Lincoln of the domestic range industry.

(Left) John P. Wright, Geo. D. Roper Corp. (Center) Edward M. Douthat, Jr., Locke Stove Co., chairman, Direct Heating Equipment Div. (Right) R. W. Otto, Laclede Gas Co., president, AGA, and Clifford V. Coons, Rheem Mfg. Co., president, GAMA.

EXCLUSIVE MPM PHOTOS



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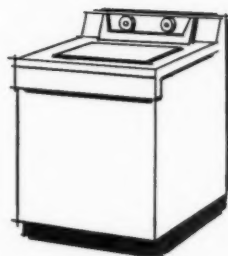
... a report on Wyandotte Industrial No. 6 Neutralizer



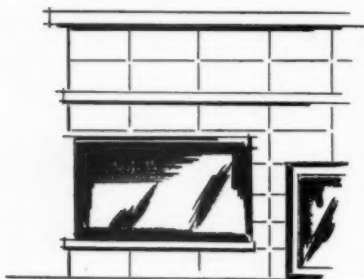
RANGES



REFRIGERATORS



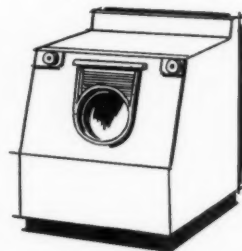
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AUTOMATIC MERCHANDISING  
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## SPECIAL SECTION INDEX

<b>A REPORT ON THE AUTOMATIC MERCHANDISING INDUSTRY</b> by C. S. Darling.....	V-4
<b>AUTOMATIC MERCHANDISING A "GROWTH INDUSTRY"</b> by William S. Fishman.....	V-5
<b>THE LATEST IN AUTOMATIC MERCHANDISING MACHINES</b> Photos show what's new.....	V-6
<b>FUTURE OF THE AUTOMATIC MERCHANDISING INDUSTRY</b> .....	V-10
<b>WHAT'S NEW IN AUTOMATIC MERCHANDISING COMPONENTS</b> .....	V-12
<b>PRODUCTION PLANNING AT VENDO</b> .....	V-14
<b>PRESSES AVERAGE TWO DIE CHANGES DAILY</b> ....	V-16
<b>ORGANIC FINISHING AT VENDO</b> .....	V-18
<b>SYNCHRONIZATION—THE KEY TO ASSEMBLY OPERATIONS</b> .....	V-23
<b>CHANGE-MAKER WITH A "MAGIC BRAIN"</b> .....	V-26



### Editor's Note:

In over 14 years of publication, MPM has presented only seven complete special sections devoted exclusively to individual companies in the field of fabricated metal products. One of these covered an unique application of steel in the building field, five were devoted to outstanding plants and organizations in the home appliance field, and one to a manufacturer of automobiles.

Aside from a special section carried as a regular feature in each September issue, devoted to the home laundry appliance industry, these are the only "special" sections that have been published.

This next in the series covers an increasingly-important segment of the metal products manufacturing industry — automatic merchandising equipment.

Our editors feel that there should be material of interest in this section for every fabricator and producer of metal products.

In the development of this special section, the editors of MPM made contact with every manufacturer of automatic merchandising equipment, counselled with the top executives of National Automatic Merchandising Association, and sent editors and photographers to Kansas City to cover production facilities in the world's largest producing plant, The Vendo Company.

Due to the number of fine products produced, it is impossible to illustrate products from each manufacturer in this single issue, or to give individual credit to the many executives and plant men who cooperated in connection with this feature. Our editors have selected from the material available and will continue to show outstanding examples of equipment in later issues as space permits.

The editors of MPM desire in this note to thank all those who extended their cooperation in connection with the development of this special section.

This special 32-page Automatic Merchandising section forms the center of a 96-page May, 1958 issue of MPM magazine.

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## A SALUTE TO THE AUTOMATIC MERCHANDISING INDUSTRY

**I**N THIS SPECIAL SECTION, the editors of MPM salute the Automatic Merchandising Equipment Manufacturers and the Automatic Merchandising Industry. According to the viewpoints of industry leaders, the manufacturers of automatic merchandising equipment (vending machines) are in the current of a continually-expanding business which can safely be termed a growth industry.

As recently as 1925 it was estimated that there were only 50,000 vending machines in operation in the United States. By 1949 the machines in use exceeded the 2,000,000 mark, and in 1956 they were well above the 3,000,000 mark. Industry figures show that during 1956 there were 483,000 new vending machines shipped to operators, at a total value of \$105.2 million dollars. This represented a 15-per cent gain over 1955.

Types of vending machines which predominate are indicated by the following: shipments of vending machines for beverages amounted to 61.3 million dollars, and shipments of machines for confections and foods totaled 16.7 million.

The value of typical vending machines is indicated by the fact that the candy bar machine is valued at \$238, the hot food machine at \$370, the coffee machine at \$627, and the outdoor milk machine at \$1,066.

There are 150 manufacturers producing the many different types of automatic merchandising equipment, which is designed to give 24-hour-a-day service on an increasing variety of confections, beverages, foods and staples.

While it would be extremely difficult to anticipate all the possibilities for automatic merchandising within the next few years, some of the products that now get the lion's share of vending equipment business are: cigarettes, cigars, candy and chewing gum, milk and ice cream, soft drinks, and coffee.

Industry spokesmen hasten to warn that vending is not the panacea for the sales ills of every retail outlet. Nevertheless, it is now possible to apply the automatic merchandising principle in offices, manufacturing plants, retail sales establishments and for outdoor merchandising after hours.

In today's new buildings, it is not unusual for architects to plan specific areas or "alcoves" for the location of automatic merchandising equipment.

To meet this ever-increasing demand, the ingenuity of the industry's best engineers has been called upon to design equipment that will not only "vend" the merchandise desired, but will make change for the purchaser and do some very fancy "mixing." A typical machine of recent vintage will make fresh-brewed coffee (which comes from vacuum packed cans) and serve it black, with cream, with sugar (or both). If you prefer, the same unit will serve hot chocolate. From this, our engineering readers will grasp the importance of design and engineering, the proper choice of materials and components, and the exacting requirements for the production line. The "automatic brain" type of equipment is no longer on the drawing boards, but is in increasing use throughout the country today.

MPM salutes the ingenuity and progressiveness of the engineers and plant men (both in the vending machine plants and the plants of component manufacturers) who have made this progress possible. We will follow with interest the growth chart, which points to the vending of four billion dollars worth of vendable products for the year 1965.

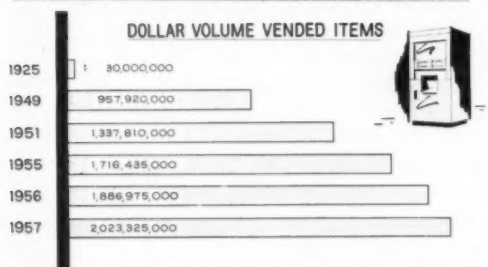
Dana Chase  
Editor and Publisher





MR. DARLING

#### AUTOMATIC MERCHANDISING SALES HIT PEAK



MR. FISHMAN



V-4

## A report on the Automatic M

by *C. J. Darling* • EXECUTIVE DIRECTOR  
NATIONAL AUTOMATIC MERCHANDISING ASSOCIATION

**T**HE National Automatic Merchandising Association, national trade association for merchandise and service vending machine operators, manufacturers and suppliers, was founded in 1936, when six men met to organize an association of companies operating such machines. Originally, NAMA was formed to combat discriminatory taxes and unfair legislation which threatened what was then a comparatively young industry. While educational work in legislative matters is still one of its main functions, the activities and objectives of the group have widened in scope immensely to insure the highest standards in the industry.

Among other important activities are the annual Convention-Exhibit, Management Education, Personnel Relations, Operating Accounting, Government Liaison and the Foreign Liaison, and a full-scale public health program.

When we try to trace the history of vending, we learn that many thousand years ago Hero, a Greek inventor in the ancient city of Alexandria, invented a dispenser for Holy Water which was activated by the insertion of a five-drachma coin. In the latter part of the 19th century, and at the beginning of the 20th century, the first machines to vend penny gum were introduced.

Before World War II, however, vending was little more than a way of dispensing salted peanuts. In 1925, according to the best industry estimates, 50,000 vending machines accounted for approximately \$30,000,000 in sales. By 1945, an estimated 2,150,000 vending machines sold over \$950,000,000 worth of vendible products.

Even though this tremendous growth happened in less than 25 years, the vending industry did not just blossom into being. When a persistent group of men introduced cigarette and candy bar venders in the mid-twenties, public response brought about the beginning of the industry as we know it today. Immediately after the end of World War II, sales rose at a phenomenal rate, and since then automatic merchandising has become a \$2-billion dollar industry.

Assuming that the industry continues to establish and operate on sound management principles, the future is definitely promising. Dr. Wilbur England, of the Harvard University School of Business Administration, projected the industry 10 years into the future based on a study he made in 1956.

Dr. England stated that the important economic facts that will affect the automatic merchandising industry from now on until 1965 are based on the assumption that there will be no outbreak of atomic war and no major business depression in the next 10 years (although there may be periods of slowing down). If the vending sales increase at the same rate as the estimated increase recorded in the 10-year period from 1936



## tic Merchandising Industry

to 1945, 1965 vending sales will amount to \$4 billion dollars.

However, there are logical reasons to support a figure as high as \$5 billion dollars. As labor seeks higher wages and shorter hours, labor costs in retail trades will increase. Since the amount of work done per hour by retail sales people has stayed the same over the last few years, even though wages have gone up, vending can really do a job of cutting costs. Other factors will affect the growth of the vending industry.

More income, which will result from the wage increases, will be used for "impulse buying," and vending will benefit because almost all items sold by vending machines are purchased on impulse. Shorter working hours will result in more time for leisure and travel and, obviously, vending equipment in locations catering to travelers will benefit. Other technological advances will also open new opportunities for vending.

Those of you who read METAL PRODUCTS MANUFACTURING know that automation of manufacturing is a reality. We feel that automation of distribution is also a reality because of vending machines. An increased use of automatic equipment is inevitable to feed workers and students. Automatic vending of all types of products after normal store hours will also increase in the years to come.

At no time do the members of the industry imply that vending will supplant other types of retail distribution. It is still a fact that many people like to handle and touch an item before they purchase. Vending can and does provide important and efficient service that might otherwise be unavailable, at a savings which no other method of distribution can approach.

## Automatic merchandising a "growth industry"

*by William J. Fishman • PRESIDENT, NAMA*

**B**EGINNING with 1946 there was terrific growth and diversification in our industry. The National Automatic Merchandising Association statistics report that vending sales during 1957 amounted to \$2,023,325,000. Informed estimates predict sales of between four and five billion dollars in 1965 — an increase of 500 per cent in sales as compared with 1950.

Today, attractive, sturdy and reliable vending machines dispense a variety of products including candies, cigarettes, confectionery products, cigars, hot coffee, cold beverages, milk, ice cream, and food products. The newest application for vending is automatic in-plant food service. Actually, automatic cafeterias were introduced about four years ago. During this very short span of time the use of automatic cafeterias has grown tremendously, demonstrating the public acceptance of this new and modern method of in-plant feeding.

Automatic feeding is a natural and logical outgrowth of the development of merchandise vending. But it is different from conventional vending just as a restaurant is different from a grocery store. Both sell food but in different form and different packaging. The installation of an automatic cafeteria requires specialists who are expert both in the techniques of vending machine operations and also in food preparation, menu planning, and food handling. The success of automatic feeding depends entirely on the competency of the operator.

Currently there are more than five hundred automatic food installations in industrial plants and offices feeding more than a half million plant and office workers. There is no longer any doubt as to whether an automatic food installation can meet the requirements for food service in industry.

A typical menu offered by an automatic cafeteria includes both hot and cold sandwiches, casserole dishes, soups and stews, pastries and desserts, ice cream, coffee, milk, tea, cold

beverages, and even complete plate luncheons. An entire new field of packaging foods has been created by automatic in-plant feeding. All the food products vended in an automatic cafeteria are packaged or wrapped. The service is sanitary and lends itself to food selling in industrial work areas where conditions might preclude the use of food carts or other methods of dispensing food unwrapped.

Automatic food service is fast. Time study engineers have verified that a battery of automatic food machines can sell more food to more people in less time than most other feeding methods.

Automatic cafeterias are economical. They require much less investment than a conventional cafeteria. The operating costs are lower. Automatic feeding is flexible. Service can be adjusted to meet requirements of overtime workers or second shift workers. When available space in a plant will not accommodate any other type of feeding installation, an automatic cafeteria can be used. Service can be adjusted quickly and less expensively to fluctuating work force or working hours.

Our industry does not claim that automatic feeding is the complete and only answer to the in-plant feeding problem. There are many plants where the conventional type of food service is to be preferred. In some instances automatic feeding may not prove to be satisfactory, but it already has been demonstrated that in many plants automatic feeding is not only the best answer but often the only answer.

The entire automatic merchandising industry is growing rapidly. New types of equipment are introduced every year. The automatic food vending facet of our industry is expanding at a much faster rate than the older types of vending and it is changing rapidly. Therefore, there is every reason to believe that the ability of automatic food service to satisfy industrial plant requirements will increase. We in the automatic merchandising industry look forward to the future with optimism and confidence.

# The latest in automatic merchandising machines

on these and the following pages are a few outstanding examples

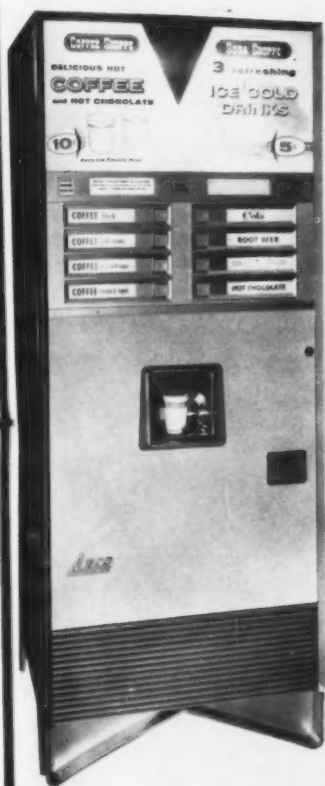


Photo above shows a cafeteria in use with machines of the Macke Automatic Merchandising Corp. This is a General Electric plant in Waynesboro, Va. where 300 people are served and seated in 7 minutes. The machine in the view at the left is made by the Vend-Rite Mfg. Co. It dispenses hot coffee and cocoa. In the photo below, the woman is putting the finishing assembly touches to a new automatic merchandising machine at Vendo Mfg.





A battery of 12 vending machines, providing complete meal service, located near the main production line of The Vendo Co.



The view above shows how a number of machines can be installed. Selective Vending Co.

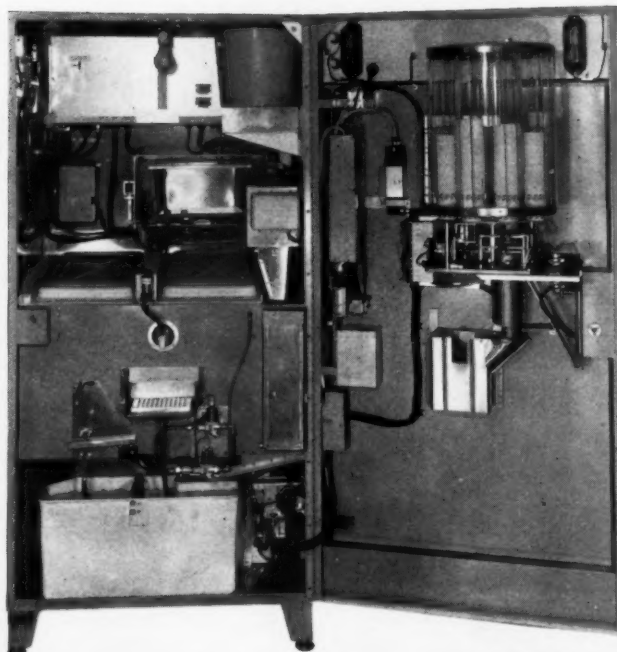
The machine at the left vends hot coffee 4 ways, hot chocolate and 4 soft drinks. Apco Inc.

Hot hot dog, with mustard, vended fresh from refrigerated machine The U. S. Vending Machine Corp.

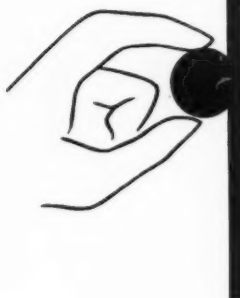
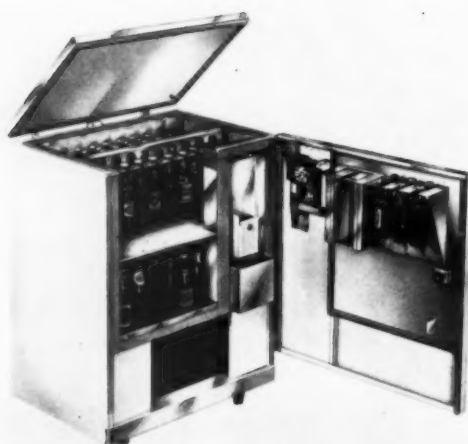
Rowe Mfg. Co. features new six-unit automatic cafeteria which includes new fresh brew coffee vendor.







The ABC Vending Corp. developed this installation (1.) using Dario-matic milk machines. Four different items are vended by the same mechanism. Note how the machines were installed with highly decorative paneling lending a built-in look. The machine above is a model 597 Bally Beverage Vender with a combination hot and cold eight selection set-up. Freshly brewed coffee comes in four ways while the other four selections can be any combination of hot and cold beverages.



An example of an industrial plant installation of a pre-mix soft drink vendor by the Glascock Bros. Mfg. Co. This machine is the Glasco Automatic Pre-Mix Vendor. The advantages of dispensing soft drinks by cup instead of bottle are quite notable.



The photo at the left, above, is a selective vendor for bottled beverages made by Champion Vender Co. It features extensive use of stainless steel. At left is an automatic ice vending machine made by the K. G. Brown Mfg. Co., Inc.







...designed for you!

## NEW BULK PACKING FOR SOUTHERN SCREWS



(1) Southern's new bulk pack permits easier, higher stacking without use of mechanical equipment, or (2) for volume handling, the pallet pack is ideal for hand-operated or power movement. (3) Both halves of Southern's bulk package can be used for splitting quantities at two stations on production line.

### DESIGNED FOR MODERN MATERIALS MOVEMENT: FITS ALL PRODUCTION LINES, LARGE OR SMALL!

Southern Screw's new bulk packaging answers your long-time need for a conveniently sized industrial package that can be handled easily by one man without the use of power equipment.

At the same time Southern's new bulk package is ideal for mechanized mass handling or storage with or without palletizing.

Here's how Southern's NEW BULK PACKAGE can save your operation handling time, production time, storage space and paperwork.

**EASIER TO STORE:** Stacks easier and higher without use of mechanical equipment, makes greater use of storage space.

**EASIER TO OPEN and CLOSE:** Individual package is wire-enclosed NOT stapled . . . Telescope-type design permits easy access to screws, effortless closing of carton.

**EASIER TO USE:** One man can place full container at driving stations on production line. Top half is ideal for holding split quantity where two workers at two locations use same size fasteners.

**EASIER TO IDENTIFY:** Southern's famous copyrighted label system provides foolproof identification of bulk package.

**HEAVY DUTY CORRUGATED CARTONS:** Sturdy 9" x 9" x 6½" carton of 275# test heavy duty corrugated stock, proven in actual tests covering one year.

**DISPOSABLE PALLETS:** For mass movement by hand truck or power equipment, Southern has standardized on a 30" x 30" disposable 2-way entry pallet stacked with 4 layers of 9 cartons, for a total of 36 cartons per pallet. No extra charge for this Southern service!

Based on the new pallet and carton system, standard packing quantities for each item have been established. For complete information, write for chart BP-1, to Southern Screw Company, P. O. Box 1360, Statesville, N. C.

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A STATEMENT BY *Lloyd K. Rudd*  
PRESIDENT, RUDD-MELIKIAN, INC.

### Retailer will have a "staff" of vending units instead of clerks

Most of us within the automatic merchandising industry believe that its present is but a small indication of its potential. I am happy to number myself within this group. It may well be, in fact, that my own enthusiasm for its future is greater than that of many who do so believe.

There are many chief areas for its growth. The advent of automatic hot plater equipment, for example, opens up a totally new market. This equipment with which we have pioneered enters a virtually wide-open market.

Similarly, the introduction of milk units dispensing it by the cup rather than by the carton opens up a totally new area for equipment manufacturers as well as for the local vending operator.

Just as obviously, there are other phases of distribution which can (and shortly will) benefit from the application of automation to retailing. It is our belief that, in time, the retailer will have a "staff" of vending units, rather than a "staff" of sales clerks.

This in turn will have far-reaching effects on distribution patterns chief among which will be the necessity for national advertising to assume an even more active role in pre-selling merchandise.

A STATEMENT BY *M. B. Raff*  
EXECUTIVE VICE PRESIDENT, APCO, INC.

### The age of the silent salesmen

Today, more than 1,200,000 automatic merchandising machines are selling goods at the rate of \$2,000,000,000 a year. It is no coincidence that the growth of these automatic merchandising devices has kept pace with the rising wage scale and the shorter work week. Vending machines dispense nationally-advertised products economically and efficiently on a round-the-clock basis. Automatic merchandising is to distribution what the assembly line is to production.

In a dozen years, the automatic merchandising market has more than tripled, measured by sales at the retail level. Moreover, equipment that was considered adequate three or four years ago is obsolete today.

The tremendous technological strides made by vending machine manufacturers in the last decade have produced machines that dispense products never vended before, together with constantly improving the type of vending machines which have been in production during that period.

In 1954, for example, only 37,000 coffee machines were in operation. Today, the figure is pushing the 100,000 mark. Two years ago, there were virtually no hot food machines in operation — today an estimated 15,000 units serve office and factory workers hot meals.

Multiple vending units to dispense grocery items are being tested by leading food chains. In the next few years, these machines will be part of the American landscape.

V-10



## FUTURE OF THE AUTOMATIC



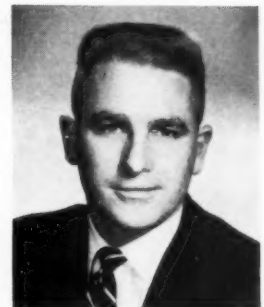
LANAGAN



RUDD



DIEDERICH  
See Page V-00



LEWIS

A STATEMENT BY *Fred Hebel*  
FRED HEBEL CORP.

### Future of automatic merchandising

The automatic merchandising industry is a relatively new industry. Its record growth in the past decade has been phenomenal.

A large variety of products and services can be successfully provided by automatic equipment. Many of these products and services are available today at the drop of a coin; but it is a very small percentage of the potential. Equipment designed to dispense additional products and services is a certainty in the future.

Today's automatic merchandising equipment is soundly engineered, and well built; but we can expect many improvements that will make future equipment more versatile and even more reliable. Improved coin handling methods for multi-pricing, and change making, even to the extent of returning change for paper money, will be available.

Automatic merchandising is a *service business*. It is the equipment manufacturer's responsibility not only to produce a well designed and reliably operating machine, but a machine that will provide a useful and needed service.

The surface has barely been scratched, and the alert manufacturer of equipment will find many opportunities. It is my opinion the next ten years will record a growth far beyond our most optimistic forecasts,

MAY • 1958 MPM

## MERCHANDISING INDUSTRY



RAPP



HEBEL



PIERSON



GREENE  
See Page V-00

A STATEMENT BY *John B. Lanagan*  
PRESIDENT, STANDARD CHANGE-MAKERS,  
INC.

### Customer convenience

The tremendous technical developments of the last few years in the vending industry have marked it as one of the leading "space age" industries. Not only has the technology of vending equipment advanced amazingly, but genuine sales ingenuity in the design department has produced vending equipment as attractive as any luxury class automobile.

It is the mission of the industry to provide vendable commodities in a manner convenient to the purchasing public. Since its beginning, the vending industry has been confronted by the problem of willing customers who do not have proper change. Until 1956, the customer with a 50c coin was a lost cause since no vending machine would accept a 50c coin, and no separate unit Change-Maker was available to provide the customer with usable change. With the advent of the 50c change-maker in 1956 the individual with a 50c coin can now obtain usable change and join the growing ranks of vending customers.

It will be interesting 10 years from now to look back on what we now consider to be the ultimate in automatic merchandising. I believe the next 10 years will prove the vending industry to be the true leader in modern merchandising.

(More statements on Page V-28)

A STATEMENT BY *Howard W. Lewis*  
PRESIDENT, DARIOMATIC, INC.

### Interurbia will foster automatic merchandising growth

In 1946, automotive economists predicted that there would be 36 million cars on the American road by 1955. Actually, there were 52 million. This forecasting error (more than all the cars in Western Europe) was caused by a failure to predict the speed of change in the American scene from city to suburban living.

The tremendous growth in the automatic merchandising equipment industry in recent years is a poor yardstick for the coming growth, for it cannot anticipate the speed of how the new change, from SUBURBIA to "INTERURBIA" — from separate cities with suburbs to very large, connecting semi-city areas.

Suburbia fostered the supermarket, with its tremendous impact on the merchandising, packaging, pricing, and volume of sales of thousands of items. Interurbia will foster automatic merchandising to such a degree that we will someday look back on our present efforts at both manufacturing and forecasting and know them to be the crude beginnings they are.

A STATEMENT BY *E. F. Pierson*  
CHAIRMAN OF THE BOARD, THE  
VENDO CO.

### Future of automatic merchandising

Automatic merchandising today is doing a tremendous job of helping marketing keep pace with production. It is not only creating new markets for many products — foods, beverages and various convenience items — but it is able to offer substantial cost reductions over conventional methods of merchandising.

These two advantages — new markets and reduced-cost operations — have established automatic merchandising as an important concept of mass selling. On the one hand, many major producers and distributors are rapidly expanding their interest in vending as they discover new sales opportunities for their products through self-serve machines. On the other hand, management people, hard-pressed to find ways of cutting costs in the current economic adjustment period, welcome vending because it helps them realize important savings in overall operations.

Automatic catering is now found in hundreds of industrial and business firms, as vending assumes the role of qualified food service agent. In addition to taking company-subsidized food operations out of the red, vending makes good, "brand name" products available on a 24-hour basis.

With its emphasis on mass service techniques, automatic merchandising is geared to the brilliant technological age we have entered. Responding to the challenge of automation, it offers precision service on a fast, efficient basis, and its growth should continue to accelerate in the years ahead.

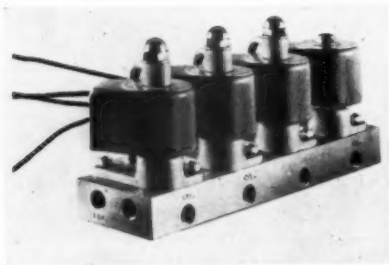
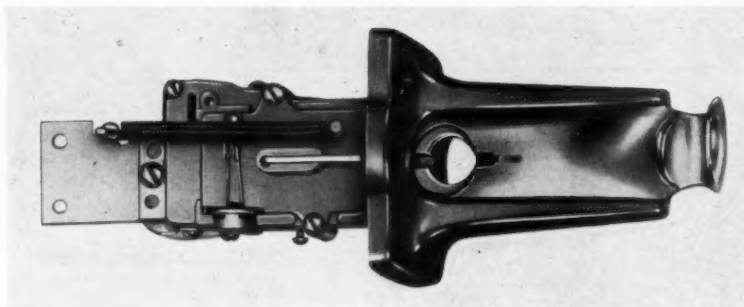




## WHAT'S NEW IN AUTOMATIC MERCHANDISING COMPONENTS

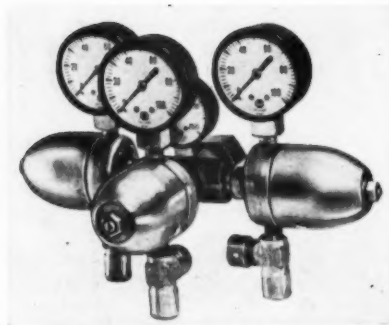
◆ Bill changer, reported to be the first practical robot cashier in the vending industry. Shopper inserts dollar bill in slot at left, picks up dollar's worth of change in coin box at right. Changer will accept wrinkled, crumpled, or torn bills, but will reject foreign currency and bad bills. A product of A. B. T. Mfg. Corp., Rockford, Ill.

◆ Coin chute, #592-G, push-pull type, has nickel-plated housing extended forward to give all metal protection for front part of slide. Available in red or green heavy-duty plastic guard, the chute comes in two styles: free play or regular. Features include zinc alloy die cast housing and hardened steel dogs. Heath Sales Co., Macon, Ga.

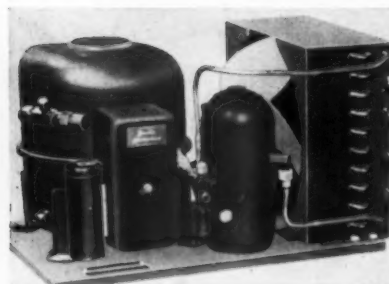


◆ Three-way valves, Bulletin 8314, for air, gas, water, light oil, refrigerants, etc., are midjet in size, for general purpose applications, and feature packless construction, interchangeable service, brass or stainless steel bar stock bodies, and can be mounted in any position. The universal-type valves may be applied to any three-way valving requirement. Automatic Switch Co., Florham Park, N. J.

Automatic water conditioner consists of a ◆ set of powerful permanent magnets so arranged that the flow of water passes through highly-concentrated magnetic fields which change the characteristics of the scale-forming products in water. Applied on vending machines using water, service calls are said to be reduced substantially. Sizes range from 2 gpm to 20,000 gpm. Cepi-American, Inc., River Forest, Ill.

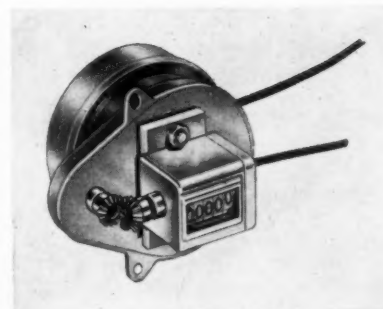


◆ These pressure regulators and manifolds are used in automatic vending machines to control the gas or air pressure used to prepare, mix, or dispense food products. Model XAK-015 regulator manifold can be set to supply three different delivery pressures from the same source of CO<sub>2</sub>. Each manifold outlet has its own regulator, delivery-pressure gauge, and relief and check valve. Linde Co., Div. of Union Carbide Corp., New York, N. Y.

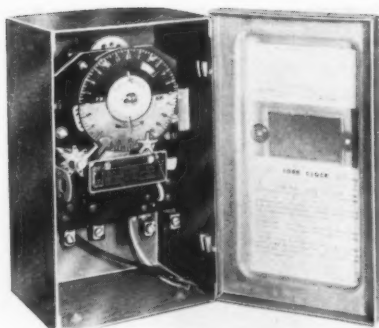


◆ Model BRH45 air-cooled, 1/2 HP condensing unit is said to be ideally suited for applications involving evaporator temperatures up to 40° F., where full 1/2 HP capacity is not required, but greater than 1/3 HP capacity is desired. Bendix-Westingshouse Automotive Air Brake Co., Evansville, Ind.

Commercial elapsed-time indicator, #5701, ◆ consists of a synchronous timing motor and non-resettable counter. Four models register time in hours, hours and tenths, minutes, and minutes and tenths. Both counter and motor are enclosed. Haydon Mfg. Co., Inc., Torrington, Conn.

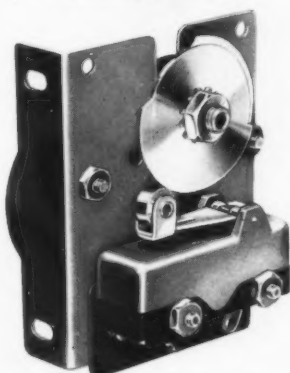






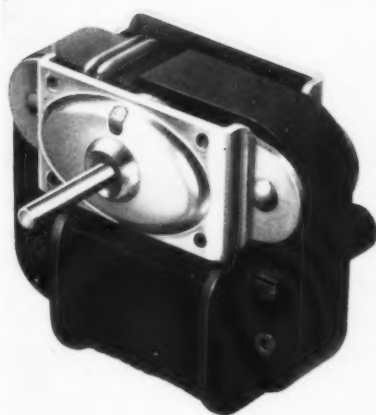
◆ Model 1191-SK timer, used for controlling lights on outdoor vending machines. Extra heavy-duty motor is said to be fully operative at extremes of temperature, from minus 60° to plus 160° F. Raintight and all-weather cases are available if desired. Skip-A-Day control for keeping lights off on Sunday is optional. Tork Time Controls, Inc., Mount Vernon, N. Y.

Sub-fractional HP motors and blowers are compact and powerful, it is said, and are for use on all kinds of vending machines. Type D, a 2-pole shaded pole induction motor, has a free speed of 3,400 rpm, with recommended load speeds of 3,000 and 3,100 rpm. Heinze Electric Co., Lowell, Mass.



◆ A neon glow lamp, designated the NE-79, has a bulb  $\frac{7}{8}$  of an inch in maximum diameter, a double contact bayonet base, and an overall length of 2 inches. It will fit into pilot lamp assemblies designed to go into a one-inch hole, and is said to have the ability to withstand shock and vibration. General Electric, Nela Park, Cleveland, Ohio.

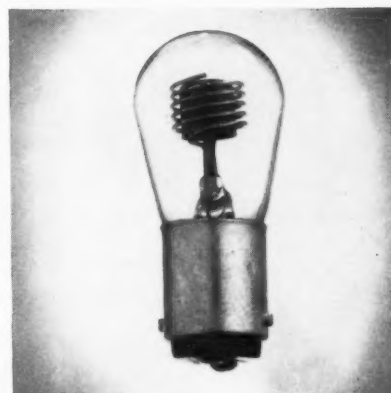
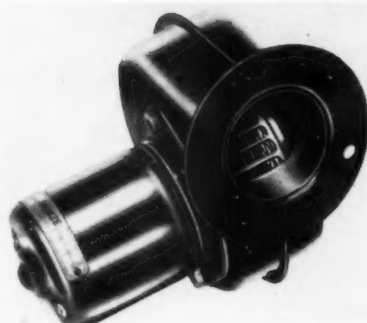
◆ Cycle timers repeat a set cycle or sequence of switching operations as long as the motor circuit is energized. Motor can be wired through switch contacts to limit rotation to one cycle. Wide choice of speeds and availability of "Torque-Rated" motors make possible many timing intervals. Number of switches is dependent upon the length of total interval and type of switch used. Haydon Mfg. Co., Inc., Torrington, Conn.



◆ Called Electriduct, this noiseless rubber over-the-floor extension duct is designed for automatic merchandising equipment. Whenever an electrical outlet is needed in the middle of a room, the duct is said to prevent stumbling over messy cords. Equipment is said to roll over it easily, the duct being  $2\frac{3}{4}$  inches wide at the base, and it rises from a feather edge to an apex of only  $\frac{7}{8}$  inch. Ideas, Inc., Laramie, Wyo.

◆ Features of this motor are said to be long-life alignable bearings, large oil reservoirs, auxiliary oil cups available to quadruple oil capacity, high starting torque, low noise level, stack thicknesses of  $\frac{1}{16}$ " and  $\frac{1}{8}$ ", shaft diameters of  $\frac{1}{8}$ " to  $\frac{1}{2}$ ", and ratings to 1/200 HP. Barber-Colman Co., Rockford, Ill.

◆ Permi-Cal nameplates are made of aluminum, in two types, and are extensively used as instruction labels in the interior of vending machines. The "regular" style requires a half-minute water immersion to remove protective cellophane backing. The "pick-off" type provides a manual removal of a heavy backing paper. Both types adhere instantly when applied with finger pressure. Both kinds "set-up" rapidly, it is claimed, and are considered permanent plates. Topflight Tape Co., York, Pa.



## St. Louis to be NAMA 1958 Convention Site

Kiel Auditorium, St. Louis, has been selected as the site of the 1958 National Automatic Merchandising Association's Convention-Exhibit in order to again provide the convenience of a show housed in only one building. The Convention is scheduled for November 2-5, 1958.

The Auditorium is convenient to all downtown St. Louis hotels, and a number of them will be selected as "official" hotels to facilitate accommodations.

Previous experience has shown that no hotel in the country is capable of housing the combined events, as well as providing rooms for the majority of those attending. After St. Louis, NAMA Conventions will be held in Chicago, Miami Beach, and on the West Coast.



ALL VENDO ILLUSTRATIONS EXCLUSIVE MPM PHOTO

## Production planning at Vendo

**basic production program is keyed to sales forecasting, with flexibility provided to meet changing needs of a growing market**

**MPM**  
FEATURE

Careful planning is the key that The Vendo Company management has used to turn the Blue Valley Kansas City operations from a small back street job shop into the largest Automatic Merchandising Machine manufacturing facility in the world.

The need for careful planning is best understood by noting that normally 700 tons of steel, and sometimes 1400 tons, are processed each month to supply the needs of the expanding markets that Vendo serves. Approximately 1400 tons of purchased parts are used each month to sup-

plement the plant's fabricating and assembly activities.

Planning requirements have grown increasingly complex as the company has developed 17 basic types of automatic merchandising equipment which require approximately 3 dozen basic catalogue items or types of equipment, many of which have several models and color requirements. This company does a considerable percentage of export business which requires further modifications from the standard products, and frequent modifications are made for large domestic customers to meet specific needs. The problem of providing immediate availability

on all parts required by customer servicing departments throughout the world is always given maximum attention. The many types of units involved in today's type of production cover a wide range in basic structure, size, shape and price—with simple operating mechanisms, complex electronic coin controls, and automatic delivery of merchandise.

While planning is not an exact science, it is a major tool in establishing the success of an operation like we find at The Vendo Company. It is easy to see that a manufacturer could "warehouse himself into bankruptcy with finished goods" or, on the other hand, "lose a substantial part

of his market by inability to deliver resulting from too cautious sales forecasting and production." He must always consider the cost of capital tied up in parts which do not have an immediate market or are not fully prepared for sale. The Vendo Company handles between 6-7,000 parts to control their activity, so it is obvious that all parts cannot be active all the time, nor can all of its active models be in production all of the time. This puts a serious responsibility on sales forecasting which is really the base of most factors the company considers in production planning. The net result is reasonable caution in planning, balanced against the cost of producing in economic lot sizes with all manufacturing cost and sales hazards carefully considered.

The production operation exemplifies what can be done by astute management that is willing to be geared to a basic production program, yet maintain a degree of flexibility that can be adapted to the ever-changing sales demands.

A growing industry calls for change, and the company is constantly exploring new courses to follow. Many plans must be made with a minimum of information

*Final check and inspection on Vendo's new fresh-brewed coffee maker. Assembly line photo shows engineers and inspectors making final quality inspection.*

concerning the market and/or the product. Automatic merchandising as a whole received some acceptance as far back as the 1880's, but sharp acceleration took place during the World War II years and is still developing at a very rapid rate. Right now it is an undisputed power in tomorrow's merchandising and marketing approach to increased consumption, lower costs, and higher living standards.

#### The five year plan

Vendo operates on a basic Five Year Plan which charts the course the company wants to take. The basic plan is set up as specifically as possible and is revised every six months—and sometimes more often—so that maximum advantage can come from new information revealed through the experiences of doing business.

Pre-planning continues down through the plant and is a basic part of every operation. All production is keyed to frequent review of sales forecasts and is controlled by the basic fabrication section. When production is started at the raw material facility area, every conceivable effort is made to quickly process that planned production into finished goods.

Operating on the finished products storage principle, the fabrication departments are geared to feed the assembly line and

the assembly line is geared to feed finished inventory requirements. Through this policy of finished product storage it is easy to see that the customer gets almost top service because models usually are available for immediate delivery. Under this policy it is much easier to avoid tripping over half finished in-process work and to improve the efficiencies of the production facility, though at times, as a result of sales trend surprises, it takes a bit longer to correct a finished goods vacancy. This one complication forces engineering and management as a whole to attempt to expand standardization of individual piece parts, and to develop variations in applications of their standard machines with the minimum of changes or specialization between models. All this helps the planning department keep the finished goods supply controlled under normal sales variations.

#### Production on ninety-day lead time

Production is scheduled normally on a 90-day lead time basis. Fabrication never starts two weeks ahead of requirements on the assembly line, with many of the bulky parts being scheduled as close to assembly as possible. On some of the complicated and heavy parts, raw materials may be found entering the plant and leaving the assembly line as finished products in a span of less than five days. The plant is well supplied with railroad spur tracks on two sides, and trucking facilities on three. Steel is delivered by rail or truck, and is inventoried in the plant by the use of an overhead transfer crane system in the

interests of safety, economy and space utility.

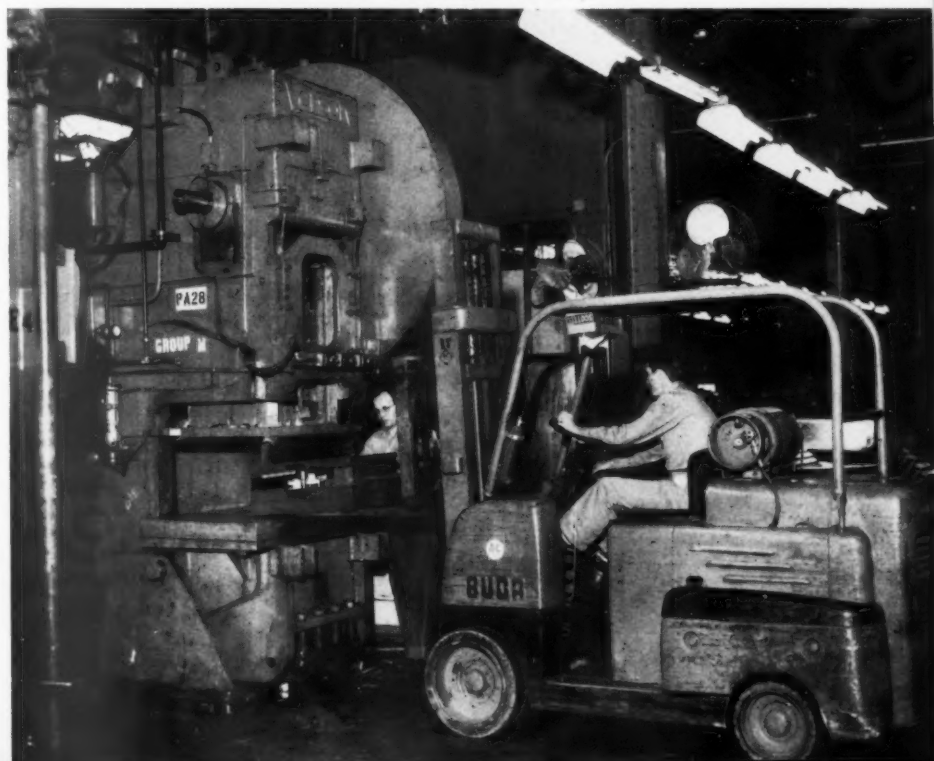
A great deal of standard carbon steel is used for the all-steel cabinets and other components, but company engineers point out that the percentages of stainless steel and aluminum are rapidly increasing, as are the numbers of electronic components.

All shop foremen work very closely with master releases and individual parts schedules prepared by a central production planning department. This planning is done so that the foreman has a reasonable latitude in moving his specific machine load schedules according to manpower and machine availability. However, he is challenged to maintain the delivery schedules specified by the central planning department or give ample notice of his objections to the plan as released to him. Sometimes real economies are established by the objective planning of the planning department, modified by specific requests resulting from the foreman's knowledge of the individual situation. Co-ordination through effective communication is an essential factor in all Vendo operations.

#### Planned materials handling

Material handling is given considerable attention on a daily basis. Small parts are placed in stack-type tote boxes and are stored in convenient locations. Larger parts are run much closer to the assembly line and more frequently are handled on skids directly from the fabrication department to sub-assembly or assembly line. A great deal of the material is moved through the use of fork trucks.

*All of the plant's subsequent operations through welding, finishing, and sub-assembly are closely tied to the press department. Here a butane powered fork lift truck is being used to change dies in a production press.*





## Presses average two die changes daily

press department houses 55 presses and forming equipment units ranging from 1½-ton crank-type presses to a 600-ton unit—presses range from high speed automatic machines that handle coil stock to slower presses for drawing cup-shaped components



In running the largest manufacturing facility in the vending industry, one would not expect that most presses would be set up twice in a day as they

are on an average day at Vendo. Some presses have specialized tooling and seldom require any daily changes at all; therefore, the rate on the balance is even higher than two changes per day. Since it has been pointed out that the plant will average approximately 110 die setups a day, it is interesting to note that the average setup is good for approximately 1500 parts. Many parts have several operations and require several setups.

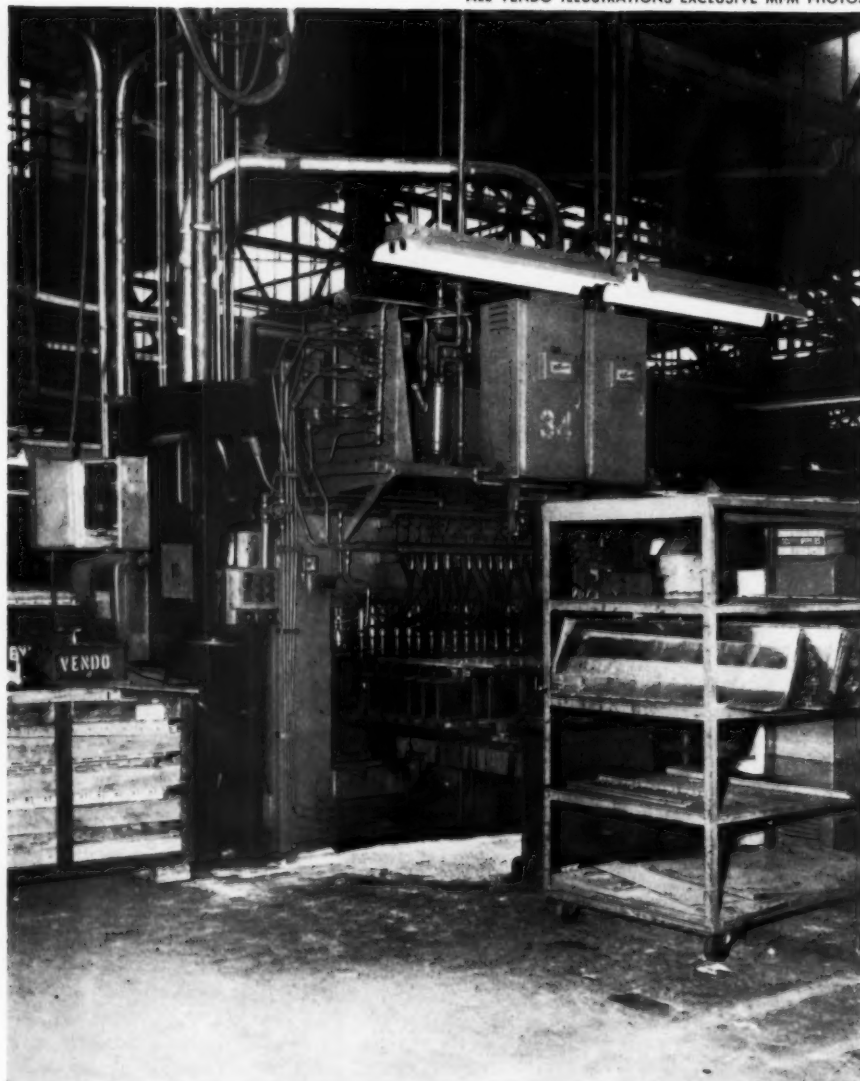
The safety of the operator in the punch press department is given a great deal of consideration. Operators are instructed to use tongs and special types of tools to handle the parts in and sometimes out of the dies. For some parts, it becomes necessary to use the hands in the danger area because the weight of the large parts, such as the door which forms the whole front unit in most machines, is too great to handle with auxiliary tools. For these parts, all operators on the big presses must push electric release buttons at the same time in order to make the punch press operate. Some of these large parts require as many as 12 consecutive operations to complete the part ready for sub-assembly.

All of the plant's subsequent operations through welding, finishing, and sub-assembly are closely tied to the punch press department activities which normally employs 120 men. The capitalization in this department is higher, and it is therefore advantageous to operate this equipment on a two-shift basis as much as possible.

The welding department handles many of the parts following the punch press department activity, and this department also performs on a two-shift basis, normally employing approximately 100 men.

*This especially-designed automatic spot welder is set up to weld a bottle vending stack. The welder is set up ready for operation. Fifteen welds are made.*

ALL VENDO ILLUSTRATIONS EXCLUSIVE MPM PHOTOS





#### **Welding equipment designed for product requirements**

In studying the plant operation, it is interesting to see the detailed coordination required between the product designs and the equipment needs to satisfy production requirements. The company has found an increasing requirement for special and semi-automatic equipment to reduce manpower as well as to improve the quality of the welded products. Vendo production men say that the special equipment gives more consistent performance, and frequently in less variation in tolerances than previously obtainable by manual means and lower cost tooling. At the expense of future flexibility, designs are frequently co-ordinated to be adaptable to specialized equipment. The company feels that this is more important in the long run than to adapt designs and processing to existing equipment and that it can be justified because, in a growing business, the existing equipment continues to be fully utilized by over-all increasing output.

One outstanding example of a semi-automatic operation is where the stacks are made for holding the bottles for several different models. This machine produces 30 sub-assemblies an hour which have 17 welding points in a line working simultaneously and automatically 7 times on each sub-assembly. To make a larger sub-assembly than this machine produces, 119 welding spots with a push of the button by the operator and 7 indexes of the machine automatically, are required. The machine then returns to the unloading position so the sub-assembly can be easily removed. This machine replaces the work done by 20 men and 10 standard welding units.

A welding installation utilizing 100 men, in addition to other activities at the plant,



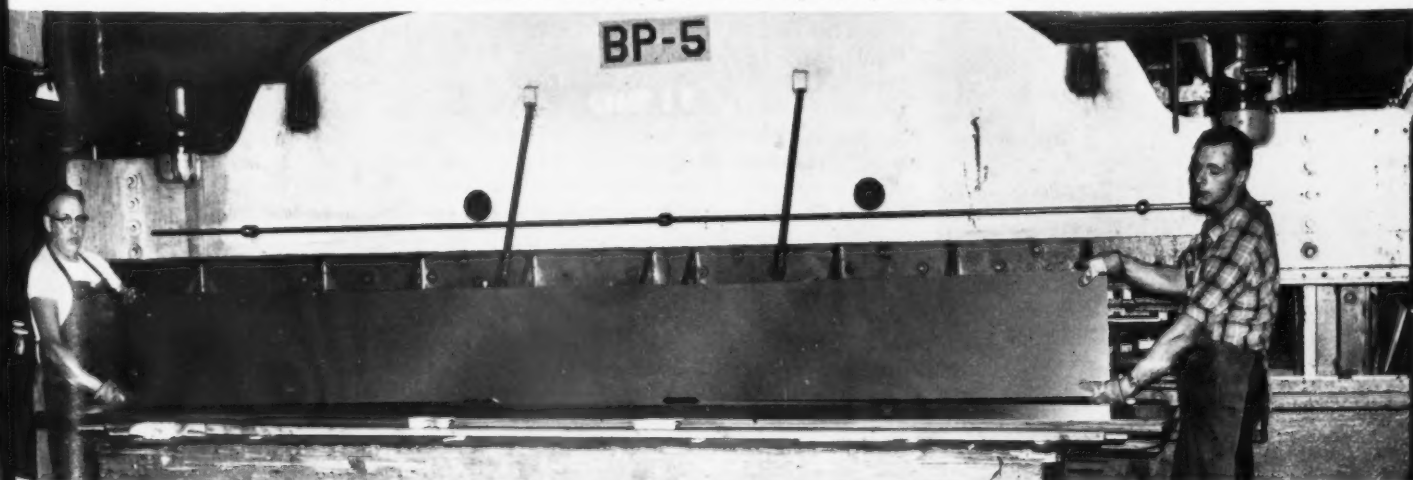
*Using a small forming press to form anodized aluminum decorative trim that fits on front of machine. This equipment is located to feed direct to the assembly line.*

requires an electrical sub-station on the company's property. As parts are fabricated through the welding operation, they pass several inspection stations where the welding is carefully checked. Metal finishing operations are accomplished to produce a smooth part before further processing.

The welding department is located ad-

jacent to a 1480-foot long paint conveyor. This conveyor takes 2½ hours to make the cycle from loading point to unloading point. The welding department also is located very close to the final assembly line so that many bulky welded sub-assemblies move directly to it. (turn page for organic finishing and assembly at Vendo)

*This large 156" x 17¼" sheet will form the wrap-around (top and two sides) for a vending machine cabinet. This notch-pierce operation is handled on a 150-ton press brake capable of taking an 18' sheet.*





*Small cabinet parts are shown entering the cleaning and phosphatizing machine on tooling designed for multiple uses.*

## Organic finishing at Vendo

**sixteen exterior colors plus "specials" — average daily paint usage would cover thirty-three and one-third five-room homes**

**V**ENDO engineers and production personnel take their painting operations seriously to develop the maximum durability and fine appearance of their finished products. There is no doubt that durability and appearance daily become more important to the users of automatic merchandising equipment. Operators, bottlers and customers are constantly asking for changes and different aesthetic features on the equipment. The company now carries 16 exterior color paints and frequently is asked to supply additional colors on a "special order" basis.

Sufficient paint to cover 33-1/3 five-room homes is used every average day in the closely-integrated organic finishing section. Colors range from the reds of the familiar Coca-Cola machines to the milk-blues used on a line of ice cream machines and milk dispensers. Recently, "hammer-tone" greens, grays and blues have become very popular.

One of the main problems in efficiently operating Vendo's painting system develops as a result of part size variations. It is not uncommon to see a row of parts 2" x 4" change quickly to a group of parts ranging from 77" x 33" x 19" deep. All of these parts are fabricated and finished under one roof and in a single story building. Under these conditions Vendo, with considerable ingenuity at home and the help of professional paint people, developed what is reported to be the first and one of the best midwest steam spray applications. Company engineers say that the steam operation has worked out very satisfactorily in all respects in this installation and justifies the careful attention it has been given.

Some parts require a prime coat and a two-color finish coat. With the use of steam spray and ingenious mechanical devices, plus highly-trained and conscientious operators in the paint booths, this work is completed at a high rate of production and with reasonable economy.

Even with steam spray the efficiency of

the operation is substantially maintained through the alertness and ability of the paint spray operator. The conveyor moves rapidly past him carrying one part on a hook, in the case of the large cabinet shell, and up to 48 parts hung like a "Christmas tree" only 4 feet away. Color changes must be made frequently and parts painted in color must not be contaminated with white overspray. The hooks carrying these varieties of parts are especially designed so that they can be put on or taken off the conveyor quickly and so that the parts can be hooked or unhooked speedily.

A mixup or misunderstanding on the paint conveyor may very quickly shut down the whole assembly department and this justifies the careful planning this area gets from key personnel.

### Metal preparation

At this plant it is believed that the finished surface can only be as good as its base. Metal preparation starts with a titanium-activated alkaline cleaner with a special wetting agent additive in the carefully maintained solution. Temperatures are maintained at 180° F, with a constant overflow system assuring the maintenance of a clean operation. Following a short drain-off period, the parts are then sprayed with hot water at 140° F and then pass directly into a 1400-gallon capacity phosphatizing section where they are sprayed with the solution maintained at 140° F. Following this, a cold water rinse cleans the product of the phosphatizing solution and then follows a short stage of 5 per cent chromic acid rinse. All products then go through a 7-minute dry-off period at 350° F. Of course, the product must be hung and designed so that most of the moisture quickly drains off in order to get satisfactory results in such a short dry-off period. All heat is controlled thermostatically through carefully-engineered gas-fired units.

All phosphatized parts are carefully inspected as they move to the prime coat



The operator above is steam spraying single color cabinet exteriors. Photo at right shows another steam spraying operation. The handling racks for small parts are adjustable to handle a variety of different parts.



booth to be sure that all areas of the material are dry and free of foreign material. It is very rare that a part will pass through the prime booth without being painted as a result of something having gone wrong in operations up to that point.

#### Steam spray application

For prime coating, parts enter the water curtain spray booth where two operators, utilizing the steam spray system of application, apply an alkaloid primer which has a high-solids content. This, company engineers point out, does some filling to "cover sins of the metal." Though this paint is not seen by the customer, it gets most careful attention as the life of the finished product depends heavily on this operation.

The "steamspray" principle of paint application as used in the prime booth is principally the same as that used in the cover coat application section. An electrically-heated boiler produces the steam for the system as required for use. The steam is transported via  $\frac{3}{4}$ " pipe, thoroughly insulated, to the super-heater at the booth and as close as possible to the spray operation. This thermostatically-controlled unit assures dry steam being fed into the application system at 350°F or above. At all times the system is maintained to assure that dry (or blue) steam is fed into the guns being manned by the operators. Paint

primer is fed through the gun at 16 to 24 psi pressure, dependent upon the particular paint being applied. This, combining with the steam, provides for a paint having a temperature of 180°F at point of departure from the gun. Temperature of the paint at point of contact with the part is approximately 90°F.

In the prime coat booth, one man is stationed on the ground level, the other on a platform. This assures that all parts from the smallest to the largest can be painted, with the applicator giving a close visual inspection of his operation. It also simplifies and speeds up the flow of work, since each operator covers only that area assigned to him; i.e., the man at ground level covers the lower sections, while the man on the platform covers the top half of each series.

As ware leaves the prime booth, it passes through an enclosed section to the gas-fired convection oven. Two minutes of free travel from end of painting to beginning of baking allows for rapid removal of vapors. Ware is subjected to a total of 20 minutes of bake in a 350°F atmosphere. The oven itself is 70' long, and the conveyor makes three passes before leaving the oven to where the sanding and general inspection operation is performed.

Here all parts are inspected, and should there be need for touch-up the part is re-

moved from the line, retouched at nearby touch-up station, and returned to the line.

#### Cover coat application — sixteen different colors

In the cover coat application section, a carefully worked out schedule provides a highly versatile operation. In this water curtain spray booth, two men normally handle the work.

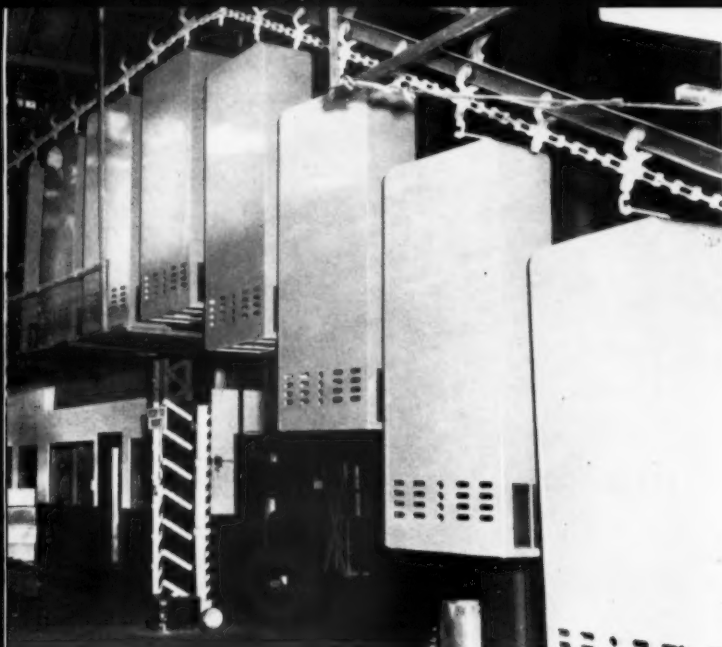
This booth is set up similar to that of the prime booth, with a steam boiler and super heater assuring proper steam temperature for the steam spraying operation. In addition, the booth is equipped with tanks containing different colors. Large volume colors are handled through circulating lines supplied by pumps from the main paint mix building.

To make color changes, the hook-up man back at the start of the line leaves only three chain hooks empty. On the center hook he hangs a sign which tells how the parts to follow are to be painted.

Without halting the line, the spray gun operator disconnects gun in use and connects a clean spray gun. Guns are changed by quick-connect fittings. The operator has a small brush and a can of thinner at his station. This he uses to brush off and thoroughly clean the gun. This same operation is done, irrespective of color changes, whenever the operator feels the paint is building up on the gun.

more →





*Method of handling doors for vending machines as they travel from finishing operation to assembly line.*

*Section of service conveyor, carrying painted cabinets, travels overhead from finishing section to unloading point.*

The cabinet area between two adjacent colors is covered later by a thin strip of silver plastic tape, applied at the end of the line, which becomes a part of the design pattern of the completed unit.

All parts, single or duo-tone painted, flow through a completely enclosed tunnel for approximately two minutes for vapor removal before going into the final bake oven. They make 4 passes in this 300°F atmosphere, remaining there for a period of 30 minutes in the gas-fired convection oven. Then they flow out into the open air for cooling and individual final inspection.

#### **Second color decoration of embossed surfaces**

Cabinet doors have additional organic finishing operations. For instance, in the standard "Coke" machine, the door has the brightly colored "Coca-Cola" and advertising symbols in white on the red background, and each machine carries in small letters the word "Vendo" on the lower section of the cabinet door panel.

This artistic paint operation is easily accomplished. All lettering and symbols are embossed in a die-stamp operation during fabrication. As each door feeds down from the final bake oven on the conveyor line it is unhooked and laid down on a specially-engineered cradle. Here operators, using a standard roll-type paint application device, quickly add the second color.

Doors are then picked up by a man on each side of the cradle and are placed on the adjacent conveyor line.

#### **Infra-red drying conveyor**

This conveyor line is equipped with two banks (one on each side) of infrared lamps. All lamps are hooked up in sets of four so that only as many lamps are

turned on as are needed for the particular letter drying job. There are 40 sets of lamps, each 375 watt. Mounted some 17" above the moving door fronts, they provide a temperature of 165°F. for quite rapid drying. The number of lamps in use is determined by the requirements of assembly, and the conveyor speed is determined by this need. At maximum speed, with all lamps turned on, the door lettering can be completely dry in 10-11 minutes.

How good a finishing job is done in the Vendo operation? Probably no prod-

uct manufactured (except those dealing directly with an abrasion problem) is faced with such a wide variety of difficult requirements. From hot boiler rooms and the unprotected driveways of filling stations, to the under-the-sun military installations in the deserts (around the world), the enamel finish on merchandising machines gets every type of assault.

Ability to retain color and gloss under the varied operating conditions requires care in metal preparation, selection of proper paint formulations, and careful application and inspection.

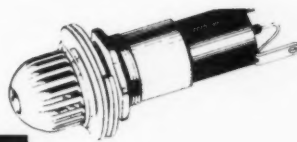
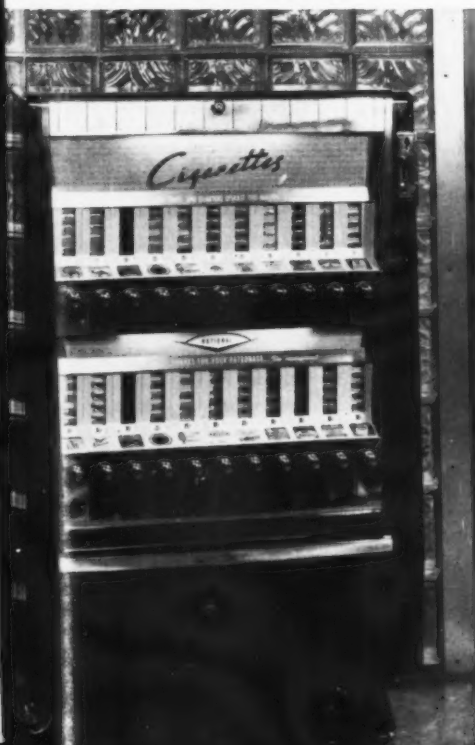
*Cabinets in final finish are unloaded from service conveyor at point adjacent to final assembly line.*



More Photos from Page V-8



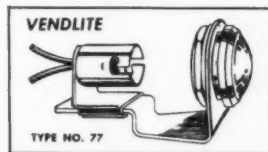
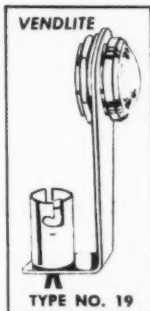
The machine above is a new model "Light Look" Pepsi-Cola Pre-Mix vendor made by the United Sound and Signal Co., Inc. Trim consists of aluminum sheet and extrusions, and pressed stainless steel. The cigarette machine below is made by National Vendors, Inc. It has a capacity for dispensing 22 brands.



## DRAKE

offers you superior performance with  
"Vendlite" INDICATOR LIGHTS...

USE  
NICKELS  
ONLY



EMPTY



These practical Indicator Light Assemblies were specially designed by DRAKE for vending machine use. They feature a 1" pilfer-proof glass lens in both the horizontal and vertical styles. The bezels are of polished chrome, for attractive appearance. Their open construction aids heat dissipation. Lamps may be replaced from back of panel only, also a pilfering preventative. They are available in a full range of terminals.

Printed discs may be obtained with any wording which fits within the allowable space. DRAKE now supplies these discs made from non-oxidizing, heat-resistant materials, which prevents disc discoloration. Or VENDLITES can be supplied with plain lenses, convex, smooth, frosted on back, in an assortment of colors.

Better designed, precision-produced DRAKE units are specified by leading manufacturers in every field where Indicator or Controlled-Illumination Lights are used. Our experts will gladly help you to the efficient and economical answers, with better quality, better delivery and often, better prices.

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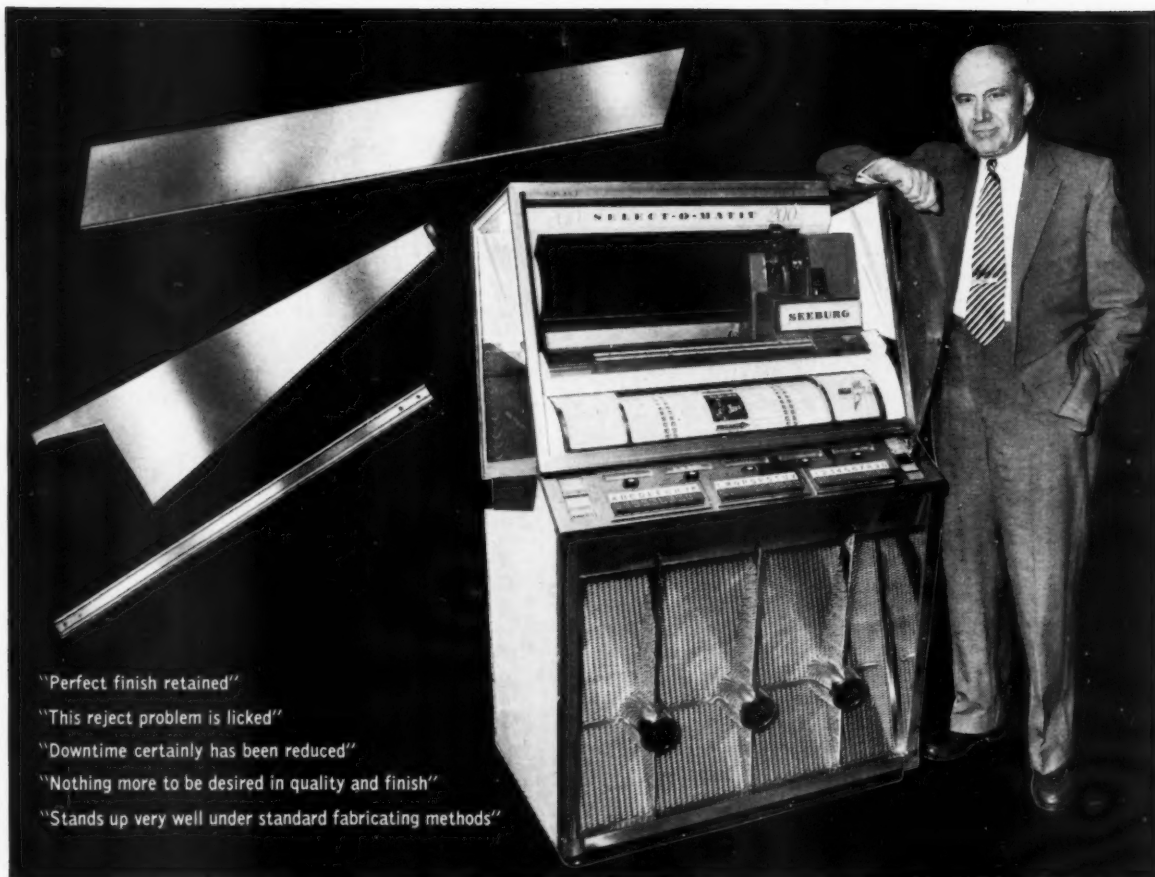


## DRAKE

MANUFACTURING COMPANY

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MINIATURE LIGHTING SPECIALISTS

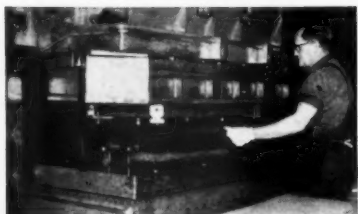


K. R. Craft, Vice President, The Seeburg Corp., Chicago, with one of the company's famous juke boxes. The brilliant reflectivity and durability of Nickeloid pre-plated metals is an important factor in the product's eye-catching good looks.

## NICKELOID METALS SAVE 4 PRODUCTION STEPS— REDUCE REJECTS FOR THE SEEBURG CORPORATION



Standard fabricating methods are used to stamp and form juke box trim. Nickeloid Metals eliminate machinery tie-up; rejects are less than 1%.



Stamping Nickeloid chrome steel, protected with Mar-Nol adhesive-backed paper which is easily peeled off. Finished part will need no polishing.

### *Pre-Finished Design Material is Easily Worked With Standard Fabricating Methods*

The Seeburg Corporation uses Nickeloid *pre-plated* chrome steel to achieve functional beauty and attention-value . . . economically. Before switching to Nickeloid, the company did its own cleaning, plating and buffing. The job required four—sometimes five more operations than are now necessary. According to Mr. Craft, "The tremendous cost of plating and buffing was not only more expensive and much more time consuming, but the finished product had to be inspected, and the rejections on plated and buffed metals was very much higher than it is with Nickeloid. Economically, the Nickeloid Metals have proved themselves in production."

Using standard fabricating methods, Nickeloid Metals need only be stamped and formed—then assembled. By capitalizing on this *pre finished method* of production, this leading manufacturer has eliminated the machinery formerly required for plating, polishing and buffing—saved four or five production steps, and is producing a better end product *with less manpower*. Can you use these advantages in your operation?



AT THE DESIGN ENGINEERING SHOW —  
SEE NICKELOID METALS, BOOTH 103-A

WRITE TODAY FOR FREE LITERATURE

**AMERICAN NICKELOID COMPANY**  
PERU 11, ILLINOIS







Synchronization is the key to smooth efficiency of the Vendo final assembly operations. The result of a combined effort in production flow patterns from sub-assembly feed-in sections, and the design and development of a floor layout aimed for optimum utilization of resources, is an operation geared for fast production at a minimum of cost.

From all sections of the plant, components feed into the assembly lines at the point of use. The fabrication and finish lines feed in their products and the sub-assembly lines funnel a constant flow of tested and inspected sub-assemblies — some quite elaborate — ready for installation.

The total operation is geared to produce units in a steady flow, regardless of changes in product scheduling or specific model orders on short notice.

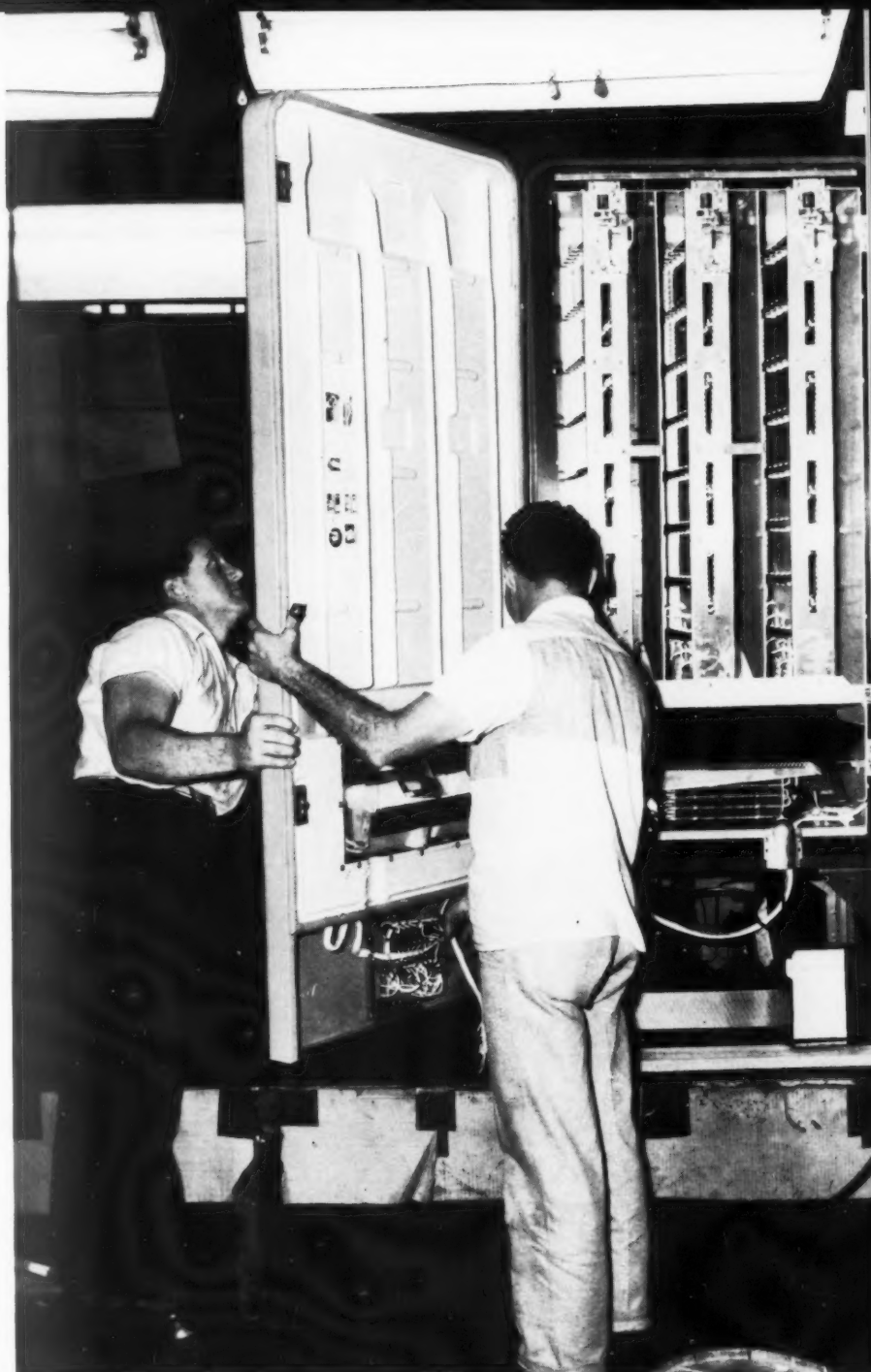
There are two assembly lines that run parallel, feeding together in the final stages to produce a completed unit. The major line consists of some 420 feet of standard wooden slat conveyor. It begins at the point where products feed in from organic finishing line and, after passing competely through assembly, inspection and testing, travels through the packaging section where the straight line conveyor terminates in the shipping department. This main line is used for the assembly of the cabinets and all included components. They are part of the line of vending machines for soft drinks, hot and cold foods, coffee, and an array of other "automatic" merchandise. Sometimes new models are assembled on shorter specialized lines until production volume increases enough to require the main line area to meet schedules. The main line accounts for most vending machine production, usually at a rate of 250 machines in an 8-hour shift. Sometimes 600 or more machines have been built in one shift at this factory.

#### **Fresh-brew coffee**

##### **and selection mechanisms**

Products range from the Coke machine dispensing unit to the most complex unit in the Vendo line — the multi-faceted automatic fresh-brew or self-brew coffee dispensing unit, which combines a hot water heating system, a refrigeration system, and an elaborate coffee making mechanism that produces coffee from fresh pre-ground vacuum packed coffee (just like you make in your home) in sixteen cup size batches until 900 cups have been sold.

A second assembly line, running alongside the cabinet assembly line, actually requires as many (sometimes many more)



ALL VENDO ILLUSTRATIONS EXCLUSIVE MPM PHOTOS

**the "simplest" and the most complex merchandising machines flow on two main assembly lines**

## **Synchronization is the key to assembly operations**



*Control mechanisms for Vendo machines are purchased complete, but are sent through a series of tests before being forwarded to the assembly line.*



*Sub-assembled vending machine conveyor sections slip into place in the cabinet liner. This model has three separate conveyor systems providing for three choices of product.*

*Assembly press operator cuts glass fibre insulation to correct size for installation in doors and cabinets, as one of first steps in final assembly.*



stations for assembly as the main assembly line. This line makes up the automatic merchandising selection mechanisms to coin changers of elaborate design that allow a quick change in pricing, when such conditions arise.

This assembly line also begins at the point where it is supplied with doors from the organic finishing line and continues some 180 feet before it terminates. At that point, completed doors are transported directly across to the primary assembly line and mounted on the near-completed cabinets — then to proceed down the main line through inspection to the shipping department.

#### **First steps in assembly for carton-milk dispenser**

In the assembly for one of the simpler units — the automatic carton-milk dispenser — the paint conveyor drops to floor level adjacent to conveyor assembly starting point, feeding cabinets to the primary line and doors to the secondary line. As the cabinets come from the conveyor chain, additional paint work is done (stenciling signs) so that lettering is on both sides, sending out the advertising message. This stencil work is quickly done, and paint formulation is such that the lettering is dry by the time the cabinet is handled on the line.

In the first step of the assembly, these cabinets are manually picked up and replaced back-down, on the assembly line; then the wooden shipping pallet is screwed into position. It provides firm support for the machine in the shipping crate.

Still horizontal, the cabinet moves to the next station where, using mastic and die cut glass fiber insulation, the cabinet is fully insulated — top, bottom, and sides. At the same time, the bottom decorative splash plate is attached.

The unit is then set upright. At this point on the line, a sub-assembly feeder conveyor system feeds in refrigeration units which are picked off and installed in the cabinet. This sub-assembly, a complete hermetically-sealed refrigeration unit, is purchased almost ready for installation. In the sub-assembly operation, the units are removed from their shipping container, then sent through a series of assembly operations, inspection and testing procedures before being cleared for installation.

This refrigeration system is bolted into place. At the next station, the three milk carton conveying systems are installed. These multi-part units are made up on special jigs in a nearby sub-assembly area, inspected, and delivered to the point of installation in wheeled tote boxes.

The milk carton conveying, discharging system is a complete assembly. The electric



A stainless steel service chute is installed under the discharge ends of the automatic conveyors. Cartons of milk released by the purchasers' coins slide down this chute into service bins. The chute is embossed to prevent cartons sticking to the metal.

cal controls for the conveyor — later to be activated by the mechanism in the cabinet door which electrically relays vending instructions — are made up as part of the sub-assembly, and arrive at point of installation, completely inspected, and ready for hook-up.

In this more simple unit, a majority of the assembly procedures are for the cabinet door. The door shell comes from the paint conveyor and is run through a (roller-coat) paint operation and then down the infra-red paint baking system. In this straight line operation, the doors are removed from this baking conveyor and placed on the adjacent assembly conveyor.

#### Insulation die cut near assembly line

Just off the line, at this point, a special die cutter is installed. Working from standard "sheets" of insulation, the special forms needed for fitting into the door and around components are made up.

In the first step of assembly, the electrical components and wiring of the door are installed. This includes connections from the selector or coin mechanism, and for the wiring that, via the coin changer acceptor mechanism, activates the machine. This mechanism also must reject slugs and wrong coins rather than call for a "vend."

Using mastic, the die cut insulation



Electrical connections which serve the coin acceptor and selection mechanisms are installed on the cabinet door just before the insulation is applied.

#### Editor's Note:

The editors of MPM wish to acknowledge the cooperation of key men throughout the Vendo organization in connection with the development of this four part feature. Our special thanks to Ed Benson, plant manager for his careful study of the manuscripts and extensive rewrite work on processing information.



The refrigeration systems are in two assemblies: the cooling coil system which is housed in the insulated cabinet, and the compressor and evaporation system which fits into a space provided at the bottom of the cabinet. Here the operator is bolting the hermetically-sealed refrigeration unit into place. The complete refrigeration system is installed so that it can be easily repaired, or the sealed unit removed without any dis-assembly operation.



Conveyors for the automatic vending equipment are made up completely in sub-assembly operations. Special jigs are utilized, as are power hand tools, to speed assembly of over one hundred components which are included in the conveyor.

shapes are then pressed and sealed into position, and the final components of the door panel installed. In the next operation, a plastic door sealer is run around the complete door panel, in the same pattern as the assembly operation in refrigerator or freezer manufacture. Both the cabinet and door units are carefully sealed from outside air and water before insulation is begun.

Then the purchased plastic inner liner is slipped into place and fastened with screws that run through the door sealer and the big plastic panel into the metal door frame.

Decorative additions are then made, the plastic service bins installed, and the final parts of the selection and coin changer mechanisms put into place.

In the final steps, all wiring is hooked up and the assembly is completed. The units then continue through final inspection, where all electrical wiring and connections are checked, and a general performance test is conducted. The conveyor then feeds the ready-to-use system into the packaging section where final instruction materials are added.

Completed units are frequently removed from stock and rechecked for quality control. Selected units are also "life-tested" as proof of engineering and of production control.

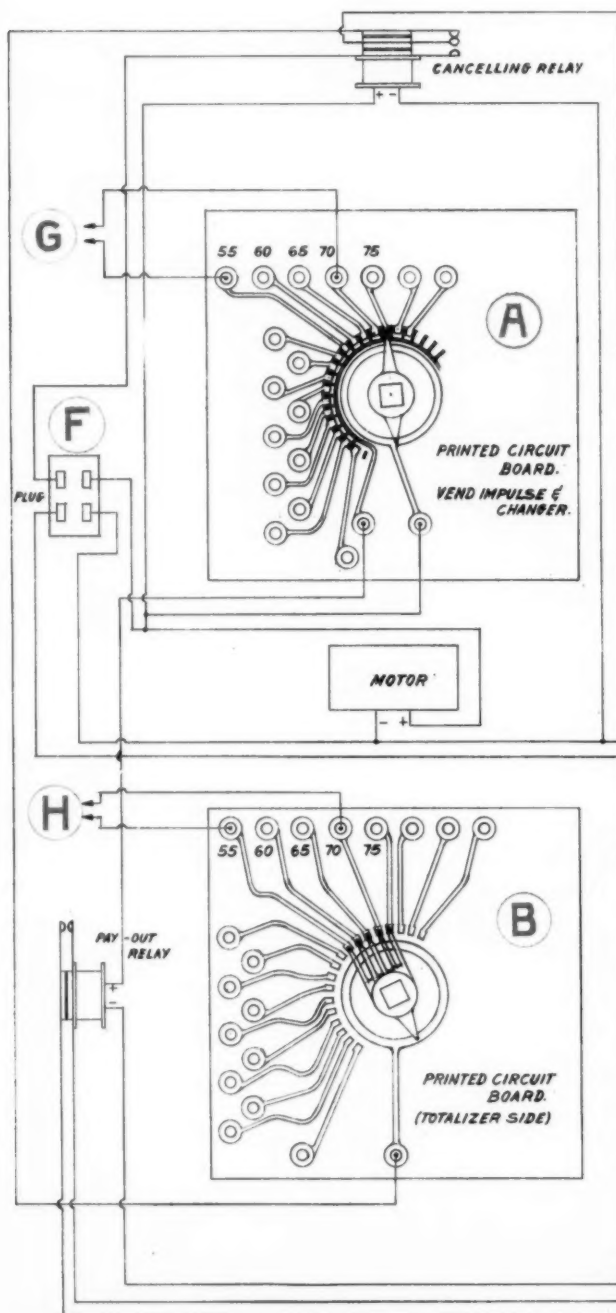


# Change-maker with a "magic brain"

**M P M**  
EXCLUSIVE  
FEATURE

Change-makers have been on the market for a number of years, but up until the present the change-maker had been designed for operation at a specific price; that is, if a vend was to be made at fifteen cents, a quarter could be inserted and two nickels and the merchandise would be delivered to the customer. Thus, there was a standard repetitive action.

The new type of change-maker, as presented in this feature, is a totalizer-computer. The first operation by the machine is to total the change deposited. The machine accepts nickels, dimes and quarters. It will total anything from five cents to \$1.50. Used with automatic vending equipment, it can sell at any price in increments of five cents through \$1.50.

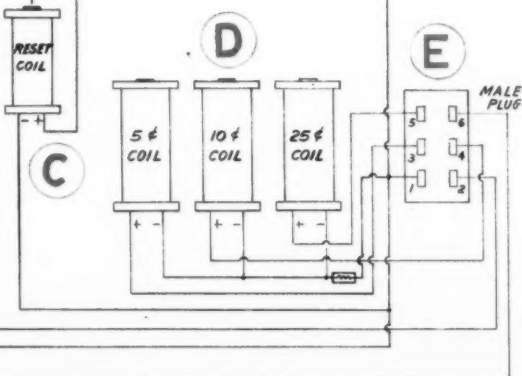


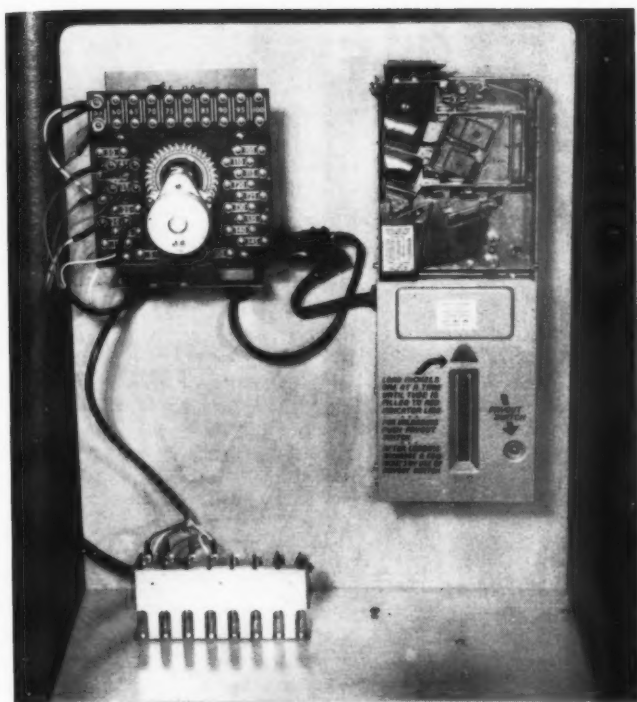
- (A) View of change pay-out side. Single contact brush shown advanced to .75c line tap; common to circuit which will close when selection is made.
- (B) Five-contacts brush shown advanced to 55, 60, 65, 70 and 75 cents line taps; common to closed circuit from interrupter switch.
- (C) Reset solenoid plunger resets unit to zero simultaneously with vending impulse.
- (D) Solenoid plungers advance contact brushes on (A) and (B) to proper tap lines: advances one when a nickel is deposited, two with a dime and five with a quarter.
- (E) Connector to coin rejector switches and pay-out changer mechanism unit.
- (F) Connector to vend—reset relays.
- (G) Pricing leads to vend—relays.
- (H) Matching price leads to selector buttons.

On the diagram, if selection of the 55-cent item is made, the circuit for only the 55-cent item closes, cancelling all others; motor will start, simultaneously rotating counter-clockwise contact brush on (A). When contact passes intermediate taps on printed circuit an impulse is carried to solenoid which actuates nickel pay-out mechanism. When contact reaches 55-cent tap, it automatically provides vend and reset impulses, completing transaction.

View (A) is as seen from the totalizer side if viewed through a transparent mounting board.

INTERRUPTER SWITCH  
HELD NORMALLY OPEN  
CLOSES AUTOMATICALLY WHEN  
FIRST COIN IS INSERTED.





Components of coin changer mounted on board for demonstration. Printed circuit totalizer-computer board is at upper left; change-making mechanism is at right.

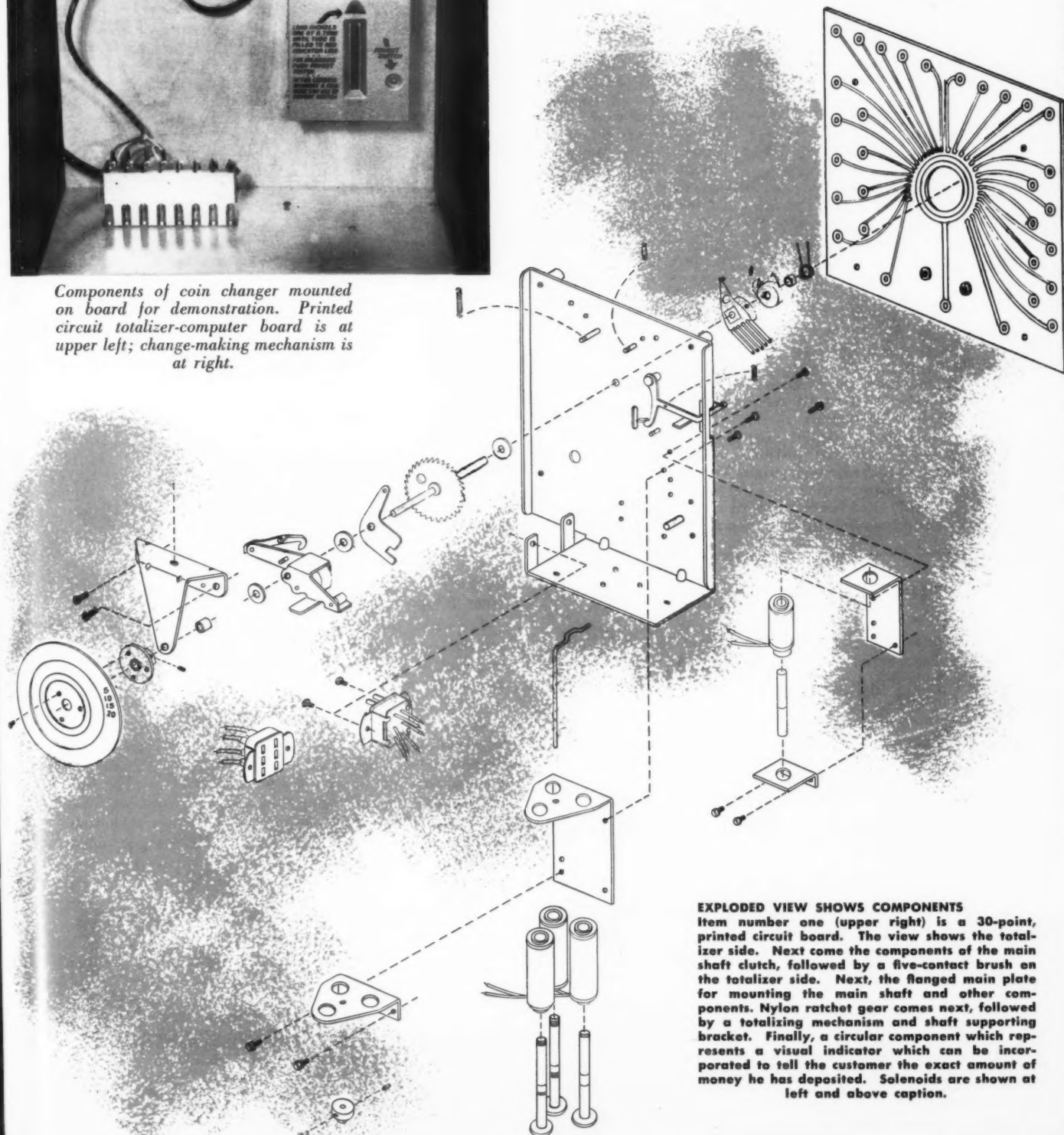
The advantage of this type of unit is that it is designed for machines that have multiple prices; in other words, where a variety of merchandise is to be sold at different prices.

The totalizer and computer are mounted on a single board. The face of the board represents the totalizer equipment, and the components for computing are mounted on the reverse side.

#### Printed Circuitry

One of the big points in making this new type of equipment possible is printed circuitry. The use of printed cir-

to Page V-28 →



#### EXPLODED VIEW SHOWS COMPONENTS

Item number one (upper right) is a 30-point, printed circuit board. The view shows the totalizer side. Next come the components of the main shaft clutch, followed by a five-contact brush on the totalizer side. Next, the flanged main plate for mounting the main shaft and other components. Nylon ratchet gear comes next, followed by a totalizing mechanism and shaft supporting bracket. Finally, a circular component which represents a visual indicator which can be incorporated to tell the customer the exact amount of money he has deposited. Solenoids are shown at left and above caption.

→ from Page V-11

A STATEMENT BY **Robert J. Greene**

PRESIDENT, ROWE MANUFACTURING CO.  
INC., AND CHAIRMAN, EXECUTIVE COM-  
MITTEE, AUTOMATIC CANTEEN CO.  
OF AMERICA

**Automatic Merchandising has barely tapped its potential**

Automatic merchandising — the most dynamic branch of retailing today — has barely tapped its potential as a sales arm. One area of indisputable future growth lies in automatic vending of food, both for on-the-spot meals and take-home use, and major design and engineering progress is being made in this direction. In recent years, important vending "breakthroughs" have included:

The phenomenal growth of automatic inplant feeding, made possible by development of machines that keep food and beverages under perfect refrigeration, or heat, until the drop of a coin delivers them. Examples: vendors for sandwiches, hot canned foods, fresh-brewed coffee, milk, soups, ice cream. Perfection of equipment for outdoor sale of milk, eggs, bread, meats and other grocery staples, which has brought about the "24-hour-a-day supermarket" and dotted the countryside with convenient round-the-clock "mechanical milkmen."

Next big step is likely to be the true "robot restaurant," capable of delivering complete on-a-plate meals — from frozen storage to hot ready-to-eat stage — in less than 20 seconds. At the same time, automatic merchandising's product base will expand in other areas, since more and more manufacturers — and retailers — are looking to vending to supplement sales.

An important design trend in automatic merchandising is toward matched vendors which can be grouped together, in any combination, to form attractive vending units — whether for sale of cigarettes, candy and soft drinks in theatres or complete automatic lunches in factories and business offices.

**Change-maker with a "magic brain"**

→ from Page V-27

culits has been important from the angle of space requirements, costs and other design factors.

The following are the normal steps in operation for the change-maker:

- (1) Insertion of coins.
- (2) Totalizing of coins (simultaneous with insertion).
- (3) Selection of merchandise and computation and delivery of change.
- (4) Delivery of merchandise and automatic re-set.

When the exact amount of change is inserted for the merchandise selected, the computation sequence is automatically eliminated. As is indicated in step 4, once the vend is completed and the change returned to the customer, the machine automatically re-sets itself for the next vend.

It is possible to exceed the maximum price of merchandise by twenty cents, allowing for as many as three quarters to be put in the machine on a 55¢ purchase. Beyond that point, any additional coins placed in the machine will be returned automatically to the customer. This prevents the machine being used strictly as a coin changer.

The changer has a self-loading tube for the nickels, so that as nickels are placed in the machine, they automatically

A STATEMENT BY **A. F. Diederich**

PRESIDENT, NATIONAL VENDORS, INC.

**Our future depends on a willingness to pioneer**

The future of automatic merchandising depends to a large degree on the ingenuity of the manufacturers of merchandise vending machines, and the willingness on the part of vending specialists (known in our industry as "operators") to pioneer.

If the past is any indication of what we can expect in the future, then the future looks very bright indeed. More progress has been made in automatic merchandising in the past five years than in all the years up to that time. Supplementary feeding through the use of vending machines was a novelty — today, vending machines provide the primary means of feeding hundreds of thousands of workers in plants and offices throughout the country. And the vending of foods is just one phase of automatic merchandising — the largest dollar-volume is still done by cigarette machines.

The automatic merchandising of pre-sold, nationally advertised packaged products in retail establishments and outdoor vending stations has barely been explored. True, some tests have been made by Supermarkets in outdoor vending (in conjunction with local operators), but they have been inconclusive. There is a definite need for the services automatic merchandising can provide, and in time the necessary equipment and techniques will be developed which may open a vast new market to the automatic merchandising industry.

There is a certain "glamour" about the vending machine business which, unfortunately, lends itself to the exploitation of the uninformed — both in manufacturing and operating, but if any industry in this country can be called a "growth" industry, surely automatic merchandising merits that title. The greatest danger lies in the over-exploitation of its possibilities.

fill this nickel tube to the point where it is completely filled. This obviates the necessity of an operator filling the tube.

The wiring on the totalizer face of the totalizer-computer employs quick connect terminals. This makes it possible for price changes to be made on a minute's notice, or to quickly change the prices on any merchandise sold in the vending machine.

This first multiple-price change-maker in the automatic merchandising field is the product of ABT Manufacturing Corporation, Chicago, a wholly-owned subsidiary of Atwood Vacuum Machine Company, Rockford, Illinois. The business of ABT Manufacturing Corporation is confined solely to the manufacture and sale of coin handling mechanisms.

The latest product of ABT is a unit for changing dollar bills. This dollar bill changer, which is now in the prototype stage, is soon to be released for production. ABT manufactures over 1,000,000 coin handling mechanisms per year.

Readers of MPM will be interested to know that in addition to the use of change-maker mechanisms on automatic merchandising equipment, similar units will soon be seen on important home appliance items.

The editors of MPM wish to acknowledge the assistance of W. A. Patzer, president; P. W. Vogt, assistant to the president; Dave Elliott, sales engineer; and J. Diaz C., research engineer. (Mr. Diaz is the designer of the unit described in this feature.)





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Choice-Vend, manufacturer of the popular Choice-Vend soft drink vending machine looks to Chicago Mill for the safe durable boxes they need for shipping.

Says Choice-Vend: "Protecting the unit in shipping is just as important as care in its manufacture. Chicago Mill boxes have the ruggedness to meet our rigid specs."

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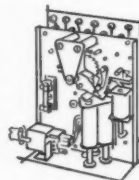
## "BILL" CHANGERS

Newest innovation in the vending industry! Robot cashier makes change for a dollar bill quickly and automatically. Unit rejects foreign currency or phony money and returns bills of larger denomination. Delivers change in convenient combination of coins.



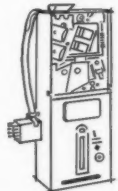
## TOTALIZERS

Offers selection of 30 different price combinations (5¢-\$1.50). Printed circuit price board facilitates fast, easy price changing. Totalizer adds combinations of 5¢, 10¢ and 25¢ coins. One-unit handles all prices and price combinations. Size: 4 1/8" by 5 1/8" by 2 3/4".



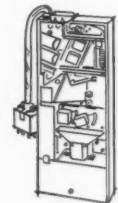
## COIN CHANGERS

Accepts 1¢, 5¢, 10¢ and 25¢ coins. Operates instantaneously. Locks slide after payment. Lever automatically changes price on location. Choice of models provides selection of 5¢, 6¢, 7¢, 10¢, 11¢ and 12¢ sales. No conversion kits needed. Employs A.B.T. Sentry rejector.



## ESCROW UNITS

Escrow unit is simple and positive . . . holds coins until vend cycle is completed . . . money can be returned at any time. Can be combined with Totalizer for complete coin system. Unlimited selections within the range of 5¢-\$1.50. Rejector accepts 5¢, 10¢ and 25¢ coins.



## COIN CHUTES

Available in 5¢, 10¢ and 25¢ models. Rejects lightweight slugs, paper, plastic etc. Heavy front casting protects slide from bending. No plastic guard to break. Has nickel plate finish. Double-coin chutes and drop chutes handle a wide variety of coin combinations.



## SLUG REJECTORS

Variety of models for single or multiple coin operation. Rejects slugs accurately . . . provides positive coin selection without the use of moving parts. Dependable . . . versatile . . . can be furnished with mounting brackets and coin switches. Compact . . . easy to clean.









# TO THE YOUNG DESIGNER

YOUR DESIGN COULD BE RUINED! or enhanced by the manufacturing procedures used in producing them. Those experienced in the Design Profession are well aware of this. Aware that new *manufacturing techniques* are frequently required to produce startling designs. Aware that a thorough understanding of *creative production* can be a *stimulating* source for new ideas and new product designs. You are building your reputation new. Each new design forms another brick in that structure. Your solutions to design problems must be stable.

For over 53 years leading designers, product stylists and planning executives have chosen CRONAME, "the design facility of Mid-America," as an outstanding source of assistance for decorative parts. The resources of CRONAME are indeed remarkable. When it comes to developing a new

product finish, the application of a new material, or a new product manufacturing technique, you will find CRONAME the most renowned source from raw material to finished part.

CRONAME pioneered etching of aluminum many years ago, installed the first Chromium plating, the first anodizing, the first precision screening, the first large scale stainless steel fabricating, originated CroRoto embossed pattern metal, patented 3-D glass decoration and is a pioneer in the printed circuitry field, and many more firsts.

To acquaint yourself with "the design facility of Mid-America" is an obligation to your clients. Illustrated literature and technical information are available on request. We will be happy to show you our facilities the next time you are in CHICAGO. You owe it to yourself!

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EMBOSSING, COINING, STAMPING  
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### GLASS LEHR

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## CRONAME PRODUCTS TO YOUR SPECIFICATIONS

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Instruction and data plates, serial numbered plates, product emblems and markers, adhesive backed plates

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Metal & glass for clocks, TV, radio, auto, instruments, etc.

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### METAL PARTS & TRIM

For electronic, automotive radio, TV, stove, refrigerator, heater, air conditioner, appliances, instruments, furniture, business machines

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Patented 3-D, ceramic, cold colors, frosting, sandblasting, edgelighting, sag bending

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Phosphorescent parts

### ASSEMBLIES

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Pattern metal

## CRONAME SERVICES

At Croname you will learn for the first time what a personal comfort it is to have a reliable source of supply offering so many services under one roof.

Our service is designed to assist you produce a more attractive product economically.

Our Creative Design Department will gladly assist you or your designers in nameplate or product design. A special sketch and sample department offers prompt service.

Other departments serving you:

Research, chemical laboratories, quality control, inspection, production art, executive production staff, photographic studios, tool & die, litho plate department, screen making department, engineering staff, methods & finishes department and . . . . . large shipping departments.

Today, Croname's facilities occupy over five acres in two buildings. Skilled craftsmen working on conveyORIZED production lines with mass production techniques make us a major source of supply for both small and large orders.

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Incorporated

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# *We're* RAISING the ROOF at DANIELSON'S

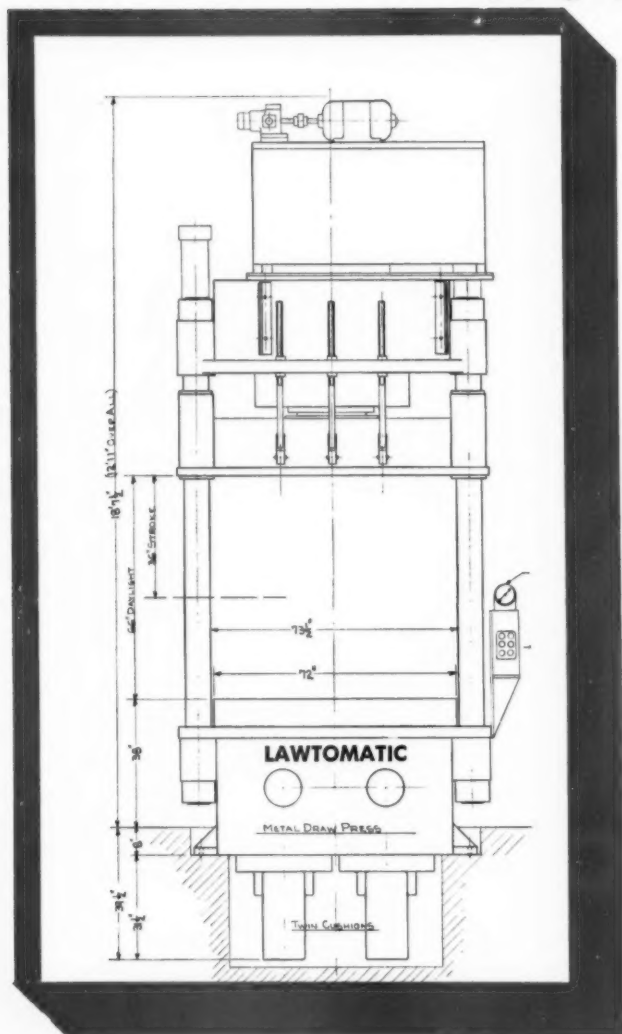
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*Specially Designed*  
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PRECISION DRAW PRESS . .

BUILT BY C. A. LAWTON CO.  
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60" x 72" bed size — 36" stroke — 66" daylight — 18" depth of draw . . .

This outstanding addition to our already well equipped plant will enable us to produce any and all sizes of precision drawn stampings for the vending and appliance industry.

We take great pride in having been a dependable and economical source of supply to the Vendo Co. for such machines as shown below.



Danielson "Know-How" and complete equipment with presses ranging from 10 to 700 ton in size is ready to produce your entire product or any component part to the most exacting specifications.

A chance to quote on your next stamping requirement is all we ask.

Write—phone or wire



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V-32



One of the famous Vendo Co. Milk Dispensers for which we make various component parts such as the dispenser door on the front of this vending machine.

MAY • 1958 MPM



## Editor's Mail

→ from Page 12

### Information helpful to reader

Gentlemen: I think you have a fine publication. The information it contains has been very helpful to me.

F. A. Riley  
Vice President  
Hi-Qua Mfg. Co., Inc.  
Philadelphia 29, Pa.

### Appliance service article of interest

Gentlemen: Please send me an additional six reprints of the editorial from the March, 1958 issue of METAL PRODUCTS MANUFACTURING.

E. R. Searby, Marketing Section  
Appliance Motor Department  
General Electric Co., DeKalb, Ill.

Ed. Note: This finish line editorial from page 19 of the March issue of MPM "Where does service start?" has attracted unusual attention. Additional responses from readers in the appliance industry will appear on pages 22 & 23 of this issue.

### Editor's caviar

Gentlemen: You will be hearing further from us in the Mrs. Home Laundry award but we wanted you to know quickly how delighted Norge is with the presentation and editorial layout.

I have sent copies of the magazine to interested local editors and we are planning something for our distributors, which we will let you know about in a day or two.

We may be prejudiced, but we consider this one of the most appealing human interest stories we have seen in a business publication.

The cooperation and trouble of John, Doc, you, and all the MPM people is very much appreciated by Norge. With best regards.

A. J. Tobin  
Norge, Div. of  
Borg-Warner Corp.  
Chicago, Ill.

### Austrian visitors

Gentlemen: A group of Austrian industrialists was invited by the Verson Allsteel Press Co. to attend a meeting of the "Pressed Metal Institute" in Chicago on January 28. On this occasion, your magazine made a photo of our group. As I have been just informed that this picture will be published in the March edition of your magazine, I should be most grateful to you if you could let me have one or, if possible, several copies of the magazine containing the photo. My address is:

Dr. Dipl.-Ing. Wilhelm Oburger  
c/o Austrian Productivity Center  
5, Renngasse  
Vienna I  
Austria.

Ed. Note: The April issue of MPM, in which the photo referred to was run, is on its way to Mr. Oburger.

MPM MAY • 1958



**SQUARE  
OR ROUND  
PYRAMID  
SETS THE PACE**

On-the-square or in-the-round, Pyramid stainless steel frames, rims and spirals are out front . . . in beauty . . . in strength . . . in economy. Virtually endless varieties of shapes and sizes can be roll formed and completely fabricated, ready to attach. Each designed to add a touch of luxury while reducing your production costs. Like more details? We'll be more than pleased to forward complete information and samples. Write today for free "Plan Book of Metal Mouldings."



**SPECIAL NEEDS?** Pyramid standard mouldings can be tailored to fit special situations. Or we'll gladly work with you in designing special mouldings for unusual or new applications. Can we be of help?

**Pyramid Mouldings Inc.**  
5365 WEST ARMSTRONG AVE., CHICAGO 46, ILL.  
NEW YORK . . . CALIFORNIA

# Cost estimating data for production of porcelain enamel on aluminum

## Introduction

It was the intent of the Subcommittee to provide simple, comparative tables for estimating the cost of enameling materials and direct labor versus investment at varying production rates. The estimated cost data given herein are intended for comparative purposes only, and in no way represent quotations or commitments of any kind.

Investment data for the various steps in the enameling process are based on square feet of porcelain enamel surface per hour (one side only) and are represented by a maximum and minimum range to provide for materials of construction, automatic versus hand operation, fuel specifications, and conveyorized versus hand or batch handling. The investment data do not include installation, buildings, utilities, laboratories or service facilities. All equipment is estimated f.o.b. delivery point.

## General considerations

(a) *Installation* includes such charges as delivery, special foundations if re-

quired, installation of switches, boxes, meters, etc., and connections to utilities.

(b) *Building* requires particular attention to floor space to include adequate room for storage as well as operating area, ceiling heights dependent upon the type of equipment, flooring, heat, lighting, ventilation, drainage and sanitary facilities.

(c) *Utilities* provide for adequate power source delivered to building, gas and water, as well as compressed air.

(d) *Laboratories or Service Facilities* include areas for test evaluations, control work and office space.

## Estimated equipment investment

By use of the following tables we can estimate that an investment in equipment of \$12,250 to \$22,000 should be capable of producing 200 sq. ft. of porcelain enameled aluminum per hour, while an estimated investment of \$28,000 to \$44,500 could be expected to produce about 1000 sq. ft. per hour.

## Estimated direct labor and materials

Labor is arbitrarily assumed at a rate of \$2.00 per hour for all operations, with the lower production rates anticipated as basically hand operation, while the higher production rates are intended to utilize mechanization. The labor and materials table is designed to compare processes. By using only the data which apply in the selected steps for an anticipated operation, an estimated comparative figure for any or all of the indicated production rates can be established. For process recommendations please refer to Porcelain Enamel Institute Bulletin AL-2a, "Recommended Processing Methods for Porcelain Enamel on Aluminum Alloys."

As illustrated in the following table, it can be estimated that when using the same process, for example, degrease, acid clean, rinse, alkaline neutralize, rinse, enamel and fire, the direct labor at 200 sq. ft. per hour will be approximately 2.12 times the direct labor per sq. ft. at a production rate of 1000 sq. ft. per hour.

METAL CLEANING	MT'S	LABOR (SQ. FT. PER HOUR)			
		1800	1000	500	200
Degrease	.0007	.0012	.0018	.0024	.0036
Alkaline	.0030	.0050	.0075	.0100	.0150
Acid	.0030	.0050	.0075	.0100	.0150
Deoxidizer	.0030	.0050	.0075	.0100	.0150
Rinse, Dip		.0012	.0018	.0024	.0036
Rinse, Spray		.0012	.0018	.0024	.0036
Dry		.0025	.0042	.0050	.0075
Other					
<b>METAL PRETREATMENT</b>					
Cleaner A*	.0030	.005	.0075	.0100	.0150
Cleaner B*	.0030	.005	.0075	.0100	.0150
Cleaner C*	.0030	.005	.0075	.0100	.0150
Cleaner D*	.0030	.005	.0075	.0100	.0150
Rinse, Dip		.0012	.0018	.0024	.0036
Rinse, Spray		.0012	.0018	.0024	.0036
Dry		.0025	.0042	.0050	.0075
Prefire		.0030	.0065	.0100	.0150
<b>ENAMEL</b>					
Milling Cost		.0011	.0016	.0022	.0033
<b>APPLICATION</b>					
Spray, Hand	.0750	.0075	.0104	.0134	.0201
Spray, Mech.	.0750	.0050	.0059	.0068	.0102
Dip-Slush	.0600	.0050	.0059	.0068	.0102
Roller Coat	.0500	.0025	.0046	.0068	.0102
Squeegee	.1500	.0180	.0210	.0240	.0360
Other					
Dry		.0025	.0042	.0050	.0075
<b>FIRING</b>					
Periodic					.0150
Continuous		.0070	.0090	.0100	
<b>CHEMICAL CONTROL</b>					
Slip		.0020	.0030	.0040	.0060
Process		.0010	.0015	.0020	.0030

\* Available from Porcelain Enamel Institute.

## CLEANING AND PRETREATMENT TANKS (4)

Production Rate	
200 sq. ft. per hour	\$2,000 - \$ 3,000
500 sq. ft. per hour	3,000 - 4,000
1,000 sq. ft. per hour	4,000 - 5,000
1,800 sq. ft. per hour	6,000 - 7,000

## BALL MILLING FACILITIES

Production Rate	
200 sq. ft. per hour	\$3,500 - \$5,000
500 sq. ft. per hour	5,500 - 7,000
1,000 sq. ft. per hour	7,000 - 10,000
1,800 sq. ft. per hour	10,000 - 15,000

## SPRAYING FACILITIES

Production Rate	
200 sq. ft. per hour	\$1,750 - \$4,000
500 sq. ft. per hour	2,000 - 4,000
1,000 sq. ft. per hour	2,000 - 4,500
1,800 sq. ft. per hour	4,000 - 6,000

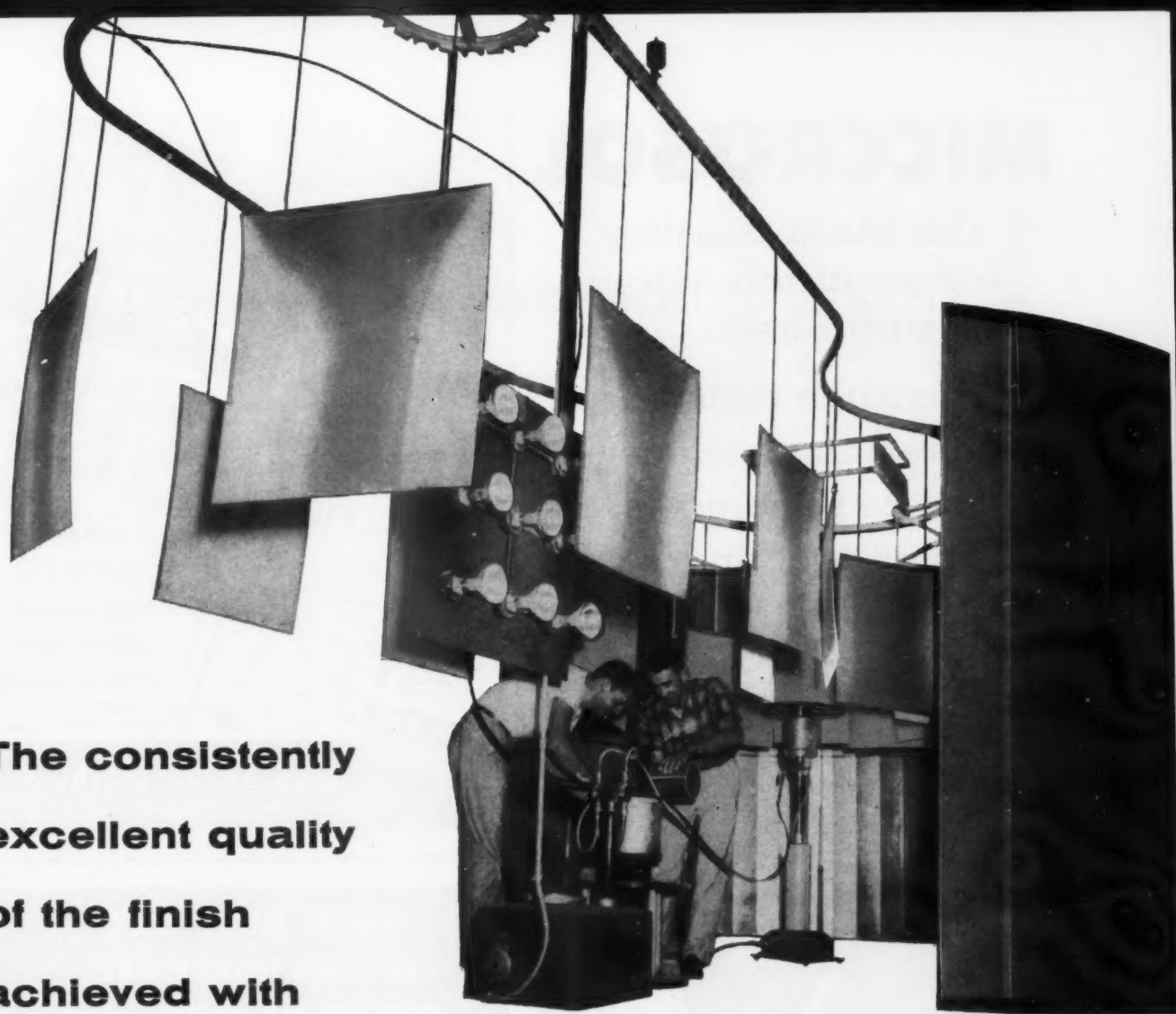
## FIRING EQUIPMENT

Production Rate	
200 sq. ft. per hour	\$5,000 - \$10,000
500 sq. ft. per hour	10,000 - 15,000
1,000 sq. ft. per hour	15,000 - 25,000
1,800 sq. ft. per hour	25,000 - up

## Ed. Note:

This is a report of the Cost Estimating Subcommittee of the Aluminum Division of the PORCELAIN ENAMEL INSTITUTE, compiled in February 1958. Copies may be obtained from Porcelain Enamel Institute, Inc. Associations Bldg. 1145 Nineteenth St. N.W. Washington 6, D.C.

The consistently  
excellent quality  
of the finish  
achieved with



# Pemco Covercoats

starts here!



Manufacturers of "the World's Finest" Porcelain Enamel  
Frits, Glaze Frits, Coloring Oxides, Screening Pastes,  
Body and Glaze Stains, Underglaze and Overglaze  
Colors, Vitrifiable Glass Colors.



**corporation**  
**BALTIMORE 24, MARYLAND**

This disc atomizing type electrostatic spraying system at Pemco assures customers who employ this method of spraying in production that frits supplied by Pemco will "behave" properly. In addition to helping customers speed production and cut costs, it will play an important part in the development of entirely new enamels for use by the industry.

Pemco was the first frit manufacturer to install such facilities for testing and research.

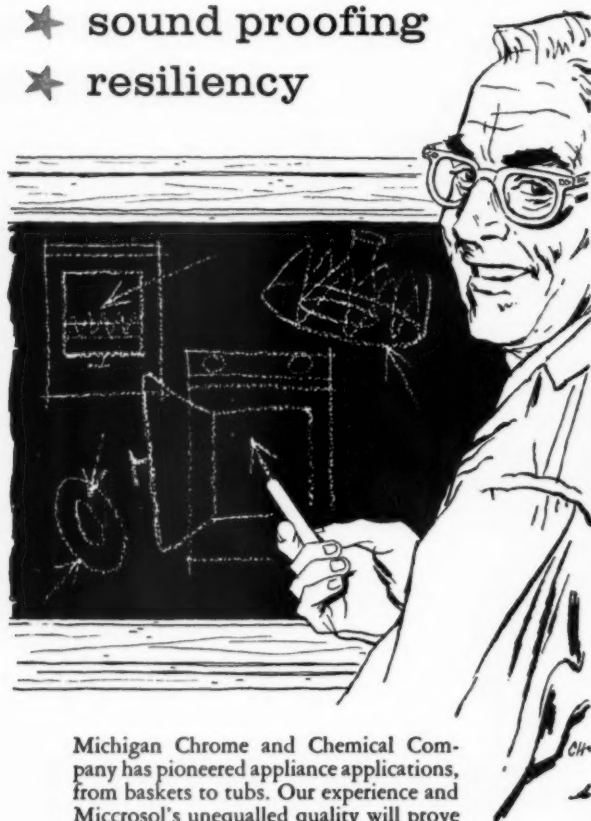
*Pemco Service* is available to you through the Pemco Engineer in your area.



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the ideal coating  
for products when  
you need . . .

- ★ corrosion resistance
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- ★ sound proofing
- ★ resiliency



Michigan Chrome and Chemical Company has pioneered appliance applications, from baskets to tubs. Our experience and Microsol's unequalled quality will prove invaluable to you.

Microsol, the plastisol proven by use, is ideal for lining and coating parts and sections of products, where special characteristics are required.

Just send us full particulars regarding your coating and lining problems.



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your source for  
**SPECIALS!**

STUD CLIPS  
MOULDING CLIPS  
SCREW FASTENERS  
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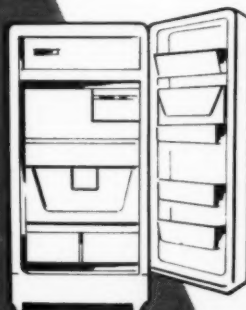
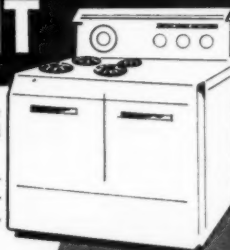
Contact your  
Cuyahoga representative

**The CUYAHOGA SPRING Co.**  
10200 BEREA ROAD • CLEVELAND 2, OHIO

## YOUR BEST BET IN TRIM HARDWARE IS GRIGOLEIT

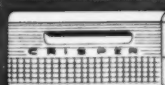
Whether your trim hardware needs are for custom-made or stock tooled products, call on Grigoleit.

Our complete facilities including designing, engineering and production know-how are at your service.



**GRIGOLEIT IS FAMOUS FOR**

- Competitive Value
- Dependable Service
- Excellent Quality



**THE GRIGOLEIT COMPANY**  
"Quarter Century of Service"

112 E. NORTH STREET • DECATUR, ILLINOIS

# NEW

## SUPPLIES & EQUIPMENT

### Sanding Machine for Polishing and Deburring

A manufacturer of a belt sanding machine now claims that finishing, polishing, and deburring of small metal parts and stampings can be put on a production line basis. The new machine is equipped with a conveyor belt or roller feed tables for setting it into the production line to accelerate production and cut unit costs, according to the manufacturer. Deburring jobs on small metal stampings are said to be done now in two or three man-hours as opposed to the twenty man-hours formerly required. For a free booklet and prices, write Dept. MPM, Timesaver Sanders, Box 7446, Robbinsdale Station, Minneapolis 22, Minn.

### Lead Foil Tape

A new pressure sensitive lead foil tape, which is used primarily in electroplating work as a "stop-off" tape to mask off parts which are not to be plated, is available.

The tape features easy release of its polyethylene liner, which permits convenient, quick application. A specially-compounded lead foil combined with a highly pressure sensitive adhesive and the new liner make the tape useful in a number of applications. In addition to electroplating, where it helps prevent edge build-up on sharp corners, the new lead foil tape is used in chemical milling of metal parts, and in helicopters as antennas. For further information, contact Dept. MPM, Permacel-LePage's, Inc., New Brunswick, N.J.

### Copper-Coated Strip

An electrolytic copper-coated strip is being offered. The all-new copper-coated strip, available in thicknesses from .004" to .040", and in widths up to 28", makes possible an improvement in intricate forming and drawing operations, and has the additional advantage of a cleaner and more uniform coating of copper plating, the announcement states. For further information, contact Dept. MPM, Strip Steel Div., Jones & Laughlin Steel Corp., Youngstown, Ohio.

### Cap Nut with Integral Washer Base

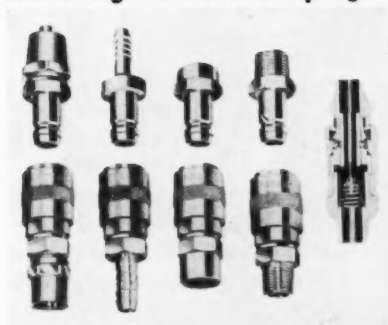
Offered to industry for the first time as a stock item, a new innovation in standard threaded cap nuts has just been introduced. Die cast from zinc alloy, the cap nuts have integral washer bases, thus eliminating the need for separate washers. From the base of the hex to the crown, the washer base cap nuts are similar to regular cap nuts. They can replace conventional units, giving substantially-greater seating area, plus many other design and production advantages, the manufacturer states. Because of the greater mating area provided by the washer base, the new units have a firmer "grip" on the surface, and thus aid in preventing the loosening of assembled parts. For further information, contact Dept. MPM, Gries Reproducer Corp., New Rochelle, N. Y.

### Serpentine Bends on tubing up to 40 feet long

The Model "S" "Bend-Ex" serpentine bender is said to be the answer to bending thin wall copper and aluminum tubing up to 180°, and at speeds that range up to 900 bends per hour.

Operation is simple and setups are easily made. The "Bend-Ex S" is equipped with a fully-automatic head, feed and table return and has a quick-change angle selector. Completely air operated, its operation is said to be

### Interchangeable Quick Couplings

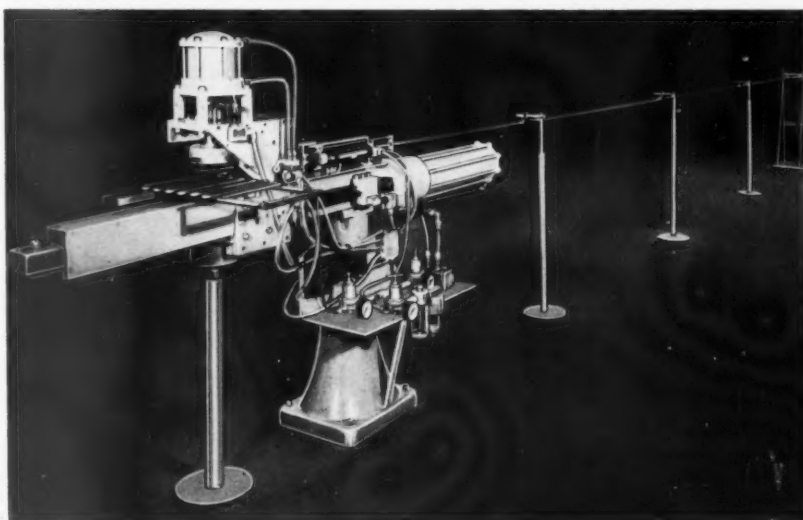


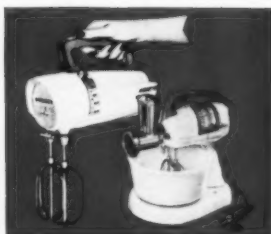
A line of quick connect and disconnect couplings, which meet Military Specification MIL-C-4109A, is being introduced. This line is interchangeable with other make couplings. Greater flow, less pressure drop, a smaller, more rugged and compact design are emphasized as the advantages of this new "D" Series interchangeable coupling. These couplings are now available at the factory as well as distributors throughout the country, in various style end connections . . . male, female, hose stem and reusable hose end connections, in sizes 1/4", 3/8", 1/2" and 3/4", with working pressures up to 10,000 psi. For further information, contact Dept. MPM, Perfecting Service Co., Charlotte 6, N. C.

fool-proof.

The model produces wrinkle-free bends on .017 wall tubing and will handle tubing up to 40 feet long, 1/4" to 5/8" diameter on minimum center-line radii, making coils up to 24" x 24" from one single tube.

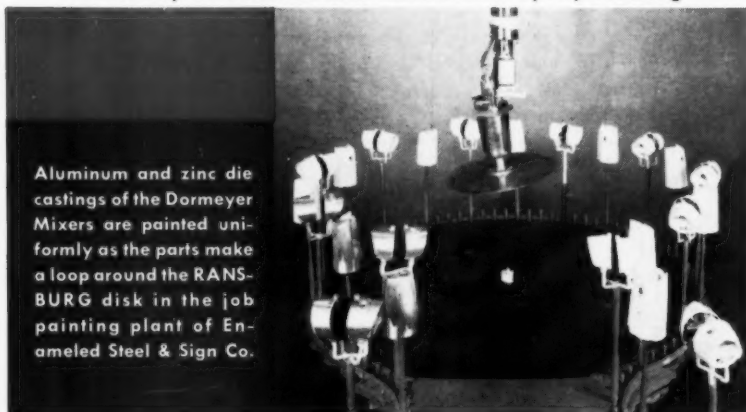
For further information, contact Dept. MPM, Paul Machine Tool Div., Paul Machine Tool & Die Works, 4600 S. Kedzie Ave., Chicago 32, Ill.





## **DORMEYER MIXERS** are painted with **RANSBURG** **NO. 2 PROCESS**

... and high quality standards  
are easily maintained with Electrostatic Spray Painting



Aluminum and zinc die castings of the Dormeyer Mixers are painted uniformly as the parts make a loop around the RANSBURG disk in the job painting plant of Enameled Steel & Sign Co.

● Enameled Steel & Sign Co. is able to serve many customers like Dormeyer, for their Chicago job painting plant is equipped with modern and efficient finishing facilities for producing high quality, high volume painting.

Electrostatic spray painting has practically replaced all other methods here, for the flexibility and near 100% efficiency of the Ransburg No. 2 Process enables Enameled Steel to serve many manufacturers of a wide variety of products. And, this with a comparatively small labor crew!

Today—with Ransburg No. 2 Process—Enameled Steel is realizing more than 60% paint savings over former hand spray. Rejects have been cut to less than 1%, for the Ransburg No. 2 Process applies a uniform, high quality finish never before obtainable with old-fashioned painting methods.

### **THINK OF WHAT 60% PAINT SAVINGS WOULD MEAN IN YOUR OWN FINISHING DEPARTMENT**

Whatever you manufacture, if your production justifies conveyorized painting, you should look into the savings and improved quality which can be yours with Ransburg Electro-Spray. Let us tell you about the complete Ransburg services, including the test painting of your products in our laboratories.

*Ransburg* **ELECTRO-COATING CORP.**  
Indianapolis 7, Indiana

**RANSBURG**



## **COMING FEATURES**

### **DESIGN**

DESIGN FOR A FAN  
CIRCUIT BREAKERS — TYPES AND USES IN  
THE APPLIANCE INDUSTRY

### **FABRICATION**

FABRICATION AT DAY & NIGHT DIV.,  
CARRIER CORP.  
AUTOMATIC WELD-ROLL PLANISHING  
MACHINES SPEED CONTAINER  
PRODUCTION

### **FINISHING**

PORCELAIN ENAMELING AT DAY & NIGHT  
DIV., CARRIER CORP.  
ORGANIC FINISHING AT ENAMELED STEEL  
SIGN CO.

### **GENERAL**

NEW APPLIANCE PLANT FEATURES  
AUTOMATED MATERIALS HANDLING  
CLEANING STAINLESS STEEL

## **Aluminum Sheet and Plate Information Book**

320 pages for product designers and purchasing executives

A well illustrated, 320-page book on aluminum includes: (1) description of aluminum and its alloys as a metal, how it is made, and the metal's physical and chemical attributes; and (2) basic facts which will be helpful in the proper selection and use of aluminum sheet and plate alloys for various methods of aluminum fabrication and finishing.

Comprehensive tables show aluminum characteristics needed to select the best suited alloys for various manufacturing processes. Alloys are evaluated as to formability, machinability, and weldability.

Subject heads include: "Fabricating, joining and fastening," "Surface finishes for aluminum," and "Forming, bending and machining."

Included also is a glossary of terms and a comprehensive index covering approximately 200 subjects. You may have a free copy of this \$5.00 book by writing on your company letterhead to Reader Service Department, METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.



# NEW

## INDUSTRIAL LITERATURE

### Plan Book of Metal Mouldings

Rings for washers, bezels for television, dinette trim and aprons, refrigerator kick plates and escutcheons, stove back guard trim, sink rims, medicine cabinet frames, wallboard mouldings are some of the applications for stainless steel or other metal mouldings. Facilities for rolling, bending, stamping and buffing are described in this book whose title is the head of this item. Write Dept. MPM, Pyramid Mouldings, Inc., 5365 W. Armstrong Ave., Chicago 30, Ill.

### Colorful Booklet on Finishing Ovens

A complete, colorful booklet is available describing modern ways to achieve better finishes, faster production, and smoother handling of metal products, all at lower cost, according to the manufacturer. Write Dept. MPM, Despatch Oven Co., 619 S. E. Eighth St., Minneapolis 14, Minn.

### Electrostatic Spray Painting

It can be proven that many cost saving benefits can be had if present production facilities justify conveyorized painting, according to a manufacturer of the electrocoating process. Up to fifty per cent less paint is said to be used by this system. A brochure is available which pictures many on-the-line examples of electro-coating on a wide variety of products, and describes a free survey service. Write Dept. MPM, Ransburg Electro-Coating Corp., Indianapolis 7, Indiana.

### Maximum Finishing Oven Efficiency

Six questions are answered in a new booklet which carries the title above. Some of these are: Does the finishing system have capacity for increased production?; Is the equipment simple enough to allow easy maintenance?; What type of materials handling is best suited for a particular process in production? These are just a few of the questions answered in this booklet. For

free copy, write METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

### Perforated Metal Catalog

A catalog is available which lists many perforated patterns that answer the need for almost any kind of design utilizing perforated metals. The company offering it has thousands of perforating dies on hand. No extra charge is made for tooling dies in stock. Practically any material that can be obtained in coils, sheets or plates up to one inch in thickness can be perforated. Contact Dept. MPM, The Harrington & King Perforating Co., Inc., 5640 Fillmore St., Chicago 44, Ill.

### Phosphate Coating for Steel

A new 4-page color brochure describing various phosphate coatings on steel for bonding paint and protecting the metal from underfilm corrosion is available. These coatings can be easily and economically applied to the surfaces by dipping, spraying or brushing, according to the manufacturer. Write to Dept. MPM, American Chemical Paint Co., Ambler, Pa.

### Cleaners, Chromate Finishes and Electro-polishing Compounds

It is possible to obtain a chemical compound for a wide range of processes such as cleaning all types of metals, chromate finishes for a variety of metals, and an electro-polishing compound for copper austenitic stainless steel and carbon steels. This complete booklet listing all these products is obtainable from METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

### How to Reproduce Photographs on the Assembly Line

Anything that can be photographed can be reproduced in the assembly line, according to a manufacturer of this process. Wood grains, leathers, fabric and mother-of-pearl facsimiles on woods, composition board, metal or plastics can be reproduced on an assembly line

scale. Precision engravings and a supply of ground coats and inks with just the right color combinations and working properties to accomplish such a task are available from the manufacturer. Write for bulletin "Polyfax — the Key to Distinctive Styling" from Dept. MPM, Interchemical Corp., Finishes Div., 224 McWhorter St., Newark 5, N. J.

### Engineering Formulas and Tables in Loose Leaf Form

Newly revised, concise, compact and comprehensive, a handy pocket sized reference manual is intended to replace heavy, bulky books. It contains basic formulas, design data and tables for three branches of engineering — civil, mechanical and electrical. All articles are in 6 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ " size and in loose leaf form. Twelve printed, celluloid-tabbed indexes give immediate access to the particular information desired. 396 pages in binder, \$4.75. Lefax Publishers, 9th & Sansom Sts., Philadelphia 7, Pa.

### Packaging Design Booklet

A beautiful, completely informative booklet on packaging materials and methods is available. The booklet describes how color can be used to enhance a product as well as describing facilities in the plant and design ideas which should help any manufacturer needing a well-designed package. For the attractive booklet, write Inland Container Corp., Indianapolis 6, Ind.

### Precision Stamped Gear Manual

Just published is a 20-page booklet illustrating typical examples of precision stamped gears and listing major applications, size limits, materials and finishes. Helpful information given in the new publications includes gear-design suggestions, tips for saving time and avoiding mistakes in the procurement of gears, and basic gear dimensional data. Also included are a full description of the anti-backlash feature, and gear-tooth formulas and terms. For the free booklet write Dept. MPM, Fastex Div., Illinois Tool Works, 195 Algonquin Rd., Des Plaines, Ill.

### Cold Roll Forming Described

"Cold roll forming" is the title of an 88-page reference manual which tells how to produce a wide variety of metal shapes by this method. The liberally-illustrated handbook is available from Dept. MPM, The Yoder Co., Cleveland, Ohio.

# MARSCO

for the Finest in  
**PRECISION GLASS PARTS!**



LET MARSCO'S CRAFTSMEN-ENGINEERING  
TEAM IMPART TO YOUR PRODUCT ALL THE  
ADVANTAGES OF GLASS

Join the television and appliance manufacturers who are now enjoying extra sales from the appeal and prestige contributed thru the luster of glass. Glass will enhance the beauty and broaden the acceptance of your product. It can be hardened, heat-treated or tempered to survive your consumer usage unscathed.

*Here are some of the applications for Marsco heat-treated,  
tempered and hardened glass parts:*

- CLOCK & TIMER CRYSTALS •OVEN DOORS •RADAR EQUIPMENT •AIRCRAFT ACCESSORIES
- PHOTOGRAPHIC EQUIPMENT •LIGHT LENSES •DIALS & NAME PLATES •TELEVISION EQUIPMENT
- INSTRUMENTS •MEDICAL EQUIPMENT •BACKGUARD GLASS FOR RANGES •LAMP GLASS •SHELVING

*Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.*



Bent Glass



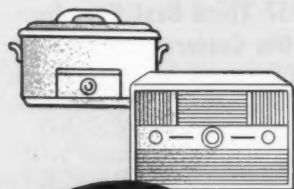
Convex Glass



Heat-treated Glass

**MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.**

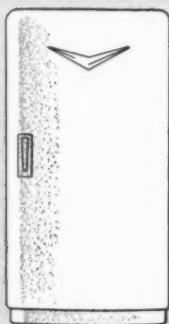
One coat does the work of two . . . with



AMAZING NEW

# DURACRON

THERMO-SETTING ACRYLIC ENAMEL



Now . . . tailored to  
your finishing needs!

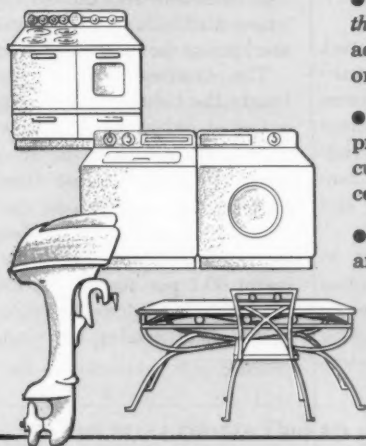
**T**oday's biggest news in finishes is the development of amazing DURACRON in a variety of formulations for many end uses.

● **Since its introduction**, this revolutionary chemical composition has convincingly demonstrated its superiority to conventional baking enamels on many products.

● **DURACRON has proved** that one coat effectively does the work of the conventional two-coat finishing system. Its many outstanding advantages enhance the sales appeal and utility of the products on which it is used.

● **Now . . . DURACRON** is made available in a wide range of properties. It can be sprayed, dipped or roll-coated. It can be cured at lower temperatures. And it can be used either as a one-coat enamel or as a top coat with various primers.

● **Mail the coupon below** for detailed information about DURACRON and learn what it can do for you. Investigate the possibility of one-coat application to reduce production costs.



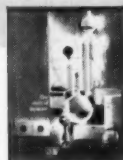
**DURACRON ALONE** combines in a single finish superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact—for a wide variety of end uses.



**Mail this coupon today for new book**

Pittsburgh Plate Glass Co., Industrial Finishes Div.  
1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me your new brochure, containing information about DURACRON Thermo-Setting Acrylic Enamel, and how it reduces manufacturing costs.



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Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_

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PITTSBURGH PLATE GLASS COMPANY

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### Youngstown Kitchens Enters Custom Cabinet Top Field

Youngstown Kitchens, a leading maker of steel kitchen equipment, has entered the custom cabinet top field with introduction of its exclusive Lustre-Trim tops and drop-in sink bowls of porcelain and stainless steel, M. L. Ondo, vice president of sales, announced.

Available to both retail dealers and home builders, Lustre-Trim tops feature Youngstown's familiar stainless steel covered backsplash and rolled front edge trim. They are made on a strictly custom basis, with cut-outs for sink bowls and range tops and with any variations required to fit a kitchen installation. The tops provide continuous work surface with no metal sealers, and are covered with plastic laminate covering in a wide range of patterns and colors. Included is an exclusive pattern, called Circlet. This is offered only by Youngstown, Ondo reported.

### National Office Exposition Scheduled for Chicago

Chicago's Conrad Hilton Hotel will take on the aspects of a "supermarket" for office executives with the opening of the big 3-day National Office Machinery and Equipment Exposition, May 26-28.

Over 40,000 business executives, including top management, operating management, and purchasing officials, are expected to attend the exposition sponsored by the National Office Management Association in conjunction with the 18,000-member Association's International Conference.

One hundred and twenty-seven manufacturers and suppliers of office needs will display their products and services on three floors, including the Exposition Hall of the big hotel, from noon until 10 P.M. daily. Many of the cost- and time-saving devices on display will

be shown for the very first time. Admission is without charge to business executives.

### Rheem Nets \$.97 a Share; Sales at \$188 Million

Net income of Rheem Manufacturing Company during 1957 amounted to \$1,968,916, equivalent to 97 cents a common share after preferred dividends, it was announced recently in the Annual Report to shareholders.

"Results for 1957 represent a turnaround from net loss of 1956 of \$9,163,134, or \$4.75 a share," A. Lightfoot Walker, president, said. Sales in 1957 were \$188,580,607, highest in the company's history and eight per cent above 1956 sales of \$173,903,212.

Earnings before providing for federal income taxes in 1957 amounted to \$3,436,916, as against a 1956 net loss of \$15,918,134 before tax credits.

### NEMA Announces New Guide to Standards Publications

The latest edition of "Your Guide to NEMA Standards Publications," a 17-page booklet describing 150 standards publications developed by Subdivisions of the National Electrical Manufacturers Association, is now available without charge from the association's headquarters, 155 E. 44th St., New York 17, N. Y.

New product standards are developed, and existing standards revised, by various NEMA sections as the need arises. The association's standards publications undergo constant revision and reprinting. The new guide, for example, contains information about nine new, and thirteen revised, standards.

Standards publications described in the booklet cover electrical apparatus and equipment in the following eight classifications: appliances, illuminating equipment, signalling and communica-

tion equipment, industrial apparatus, building equipment and supplies, insulating materials, insulated wire and cable, and generation, transmission and distribution equipment.

### 1957 Third Best Year for Die Casters

Overall production and sales of die castings in 1957 were exceeded only in 1955 and 1956, according to an annual report just released by the American Die Casting Institute. Actually, the production of die castings of aluminum reached a new high level in 1957 in spite of a precipitate drop in fourth-quarter production as a result of the general decline in the economy noted in the closing weeks of the year.

Aluminum alloy die casting production totalled 376,500,000 pounds in 1957, 2.5 per cent above the 1956 record level. An additional 28,200,000 pounds of aluminum was consumed by the die casting industry in the making of zinc alloys. Of this combined total of 404.7 million pounds of aluminum, 78 per cent or 316 million pounds, was supplied by the smelting industry. The balance was of primary origin. Die casting uses thus accounted for 54 per cent of the total production of the aluminum smelting industry.

The number one market in 1957 for aluminum and zinc die castings was the automotive industry. The second largest market was the home appliance industry.

The American Die Casting Institute breaks the industry groups into 12 categories or industries. MPM serves four of these industries, and the accompanying chart shows the end use distribution of die casting sales among the industry groups served by MPM. Note that the four industry groups served by MPM represent 80.1 per cent of the total market for zinc die castings, and 68.9 per cent of the total market for aluminum die castings.

END USE DISTRIBUTION OF DIE CASTING SALES IN 1957

END USE INDUSTRY GROUPS	ZINC % Of Total	ZINC Estimated Pounds	ALUMINUM % Of Total	ALUMINUM Estimated Pounds
Automotive (Motor Vehicles)	56.9	256,000,000	42.8	115,000,000
Home Appliances	18.3	82,500,000	17.5	47,000,000
Office Equipment & Business Machines	3.9	17,500,000	7.5	20,000,000
Timing Devices & Clocks	1.0	4,500,000	1.1	3,000,000
% Of Total Market	80.1		68.9	

Note: Represents all job shop sales. Captive use not included.  
Source: Reports of members to American Die Casting Institute.

## Record Attendance Expected for 1958 Appliance Technical Conference

The 1958 Appliance Technical Conference sponsored by the Sub-Committee on Domestic Appliances of the AIEE Domestic and Commercial Applications Committee is expected to report a record breaking attendance at the meeting scheduled for the Morrison Hotel, Chicago, Illinois, May 26-27. The local Conference Committee, under the chairmanship of Harold Bunte, Commonwealth Edison Company, bases this prediction on early response to meeting announcements, the importance of the program to appliance engineers, and the fact that all engineers in the appliance industry are invited, irrespective of whether or not they are affiliated with AIEE or the electrical industry.

The Committee points out that there are papers and scheduled discussions of importance to every appliance engineer, as well as specific material relating to most of the appliances in common use.

Program highlights will range from "Problems of Grounding," "Electrified Air Filters," "Water and Appliances," "Electrical Controls for Gas Appliances," and "Standardization of Pre-Shipment Testing" to a complete afternoon session on "Noise Control of Domestic Appliances." It is expected that the noise control session will draw engineers from plants manufacturing all types of motor-operated appliances.

A late addition by the program committee is a paper based on the increase in maximum allowable motor temperatures permitted by U/L listing requirements and a motor repair shop survey. This paper will take up the problem of thermal protection for appliance motors used in 1958 and later years.

G. E. Schall, Jr., with Underwriters' Laboratories, Inc., is chairman of the Domestic and Commercial Application Committee. D. C. Krammes, of The Hoover Company, is Chairman of the Sub-Committee on Domestic Appliances. As indicated, Harold Bunte, Commonwealth Edison Company, is chairman of the Chicago local committee for the 1958 conference. Other members of the local committee are Leo Dolkart, Schulman Electric, W. H. Farrell, Underwriters' Laboratories, T. J. Needham, Sears Roebuck and Company, and Dana Chase, Editor of METAL PRODUCTS MANUFACTURING.

Appliance engineers or management men requiring additional information on the conference should write direct to D. C. Krammes, c/o The Hoover

Company, North Canton, Ohio, or to Harold Bunte, c/o Commonwealth Edison Company, 72 West Adams St., Chicago 90, Ill.

## Midwest Enamellers Re-elect Officers—Set Maypole Party

The Midwest Enamellers Club re-elected the entire slate of officers for the coming 1958-59 year. These were: Forrest Nelson, A. O. Smith Corp., Milwaukee, president; James Tustin, Rheem Mfg. Co., Chicago, vice president; John Novak, Chicago Vitreous Corp., Cicero, Ill., secretary-treasurer; John Sincere, Dana Chase Publications, Elmhurst, Ill.,

assistant secretary-treasurer; and John Gustitus, Pemco Corp., Chicago, membership chairman. New council members elected to serve until 1961 are: Harold Wilson, Vitreous Steel Products Co., Nappanee, Ind.; Edward Miller, Ferro Corp., Chicago; and Carl Strobach, Rheem Mfg. Co., Chicago.

The date set for the annual Maypole Party, to be held at the White Pines Golf Club, Bensenville, Ill., is May 23rd. Golf will be the main afternoon activity, with dinner and prizes to follow. Entertainment will be changed this year to suit the desires of the members. An innovation this year will be refreshment

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# New Thermosetting Acrylic Finish

resists detergents, abrasion, light and heat!



## VITRILAN\*

Now you can achieve a new excellence in finish performance with VITRILAN, Interchemical's *thermosetting* acrylic finish that brings improved all-around protection and lustrous beauty to appliances and other fabricated metal products.

VITRILAN is a really *new* finish that combines the color retention, the chemical and abrasion resistance of the acrylics with the hardness and toughness of a baking enamel.

Here's what this can mean to you!

... For home laundry and dishwashing appliances—outstanding soap and detergent resistance.

... For cooking and heating appliances—better color retention at temperatures up to 400°F., surpassed only by silicone finishes costing up to three times as much.

... For *any* appliance—improved resistance to abrasion, corrosion, food and drug staining plus remarkable gloss and color retention on exposure to light; produces whites that stay white longer.

For the complete story,  
write for the new bulletin on IC VITRILAN.



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## Industry News

→ from Page 75

stations at likely spots on the golf course, and a buffet-style luncheon to accommodate the golfers.

The club recently made a plant trip to Inland Steel's East Chicago, Ind. works through the cooperation of Mel Gibbs and many other hospitable Inland executives. Approximately 80 members attended.

### Waste King Ships Dishwashers, Front Panels Separately

All Waste King under-counter dishwashers, except those with white or stainless steel front panels, are now being crated and shipped to distribution outlets without panels, it was announced recently.

Elm Weingarden, national sales manager of Waste King Corp., Los Angeles, said the colored, copper plate, and unfinished birch front panels are being shipped separately. "Providing distributors and dealers with a basic inventory of dishwashers without front panels, and a full variety of various panels in separate boxes, allows infinite flexibility and makes it easier to fill orders," he explained.

### Metal Institute Scheduled for Chicago

The National Association of Architectural Metal Manufacturers announces that its Second Annual Architectural Metal Institute will be held July 7-12, 1958, at Northwestern University (downtown campus), Chicago, Ill. The NAAMM has established this Institute in recognition of the growing demand for adequately trained management personnel. Recognizing the need for advancement in management techniques, the Institute has programmed a management seminar designed to provide an adequate training program for the employees of members of the association.

### New Curtain Wall Panel Design Announced

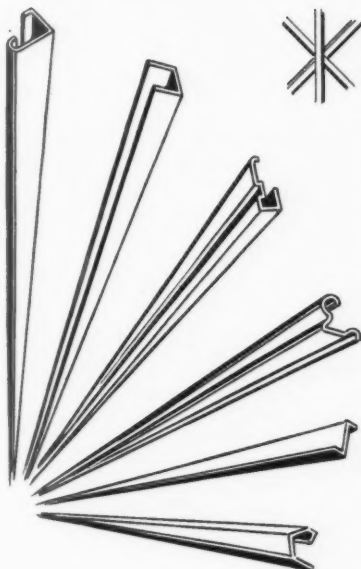
Development of a striking concept in curtain wall panel design, a combined curtain wall panel and an electric radiant heating unit for office buildings, apartment houses, hotels, schools, motels and other structures, is now available from The Bettinger Corp., Waltham, Mass., designers and manufacturers of architectural curtain wall panels.

A saving of at least 25 per cent in the initial cost of construction utilizing

to Page 80 →

# \* Design for Sales

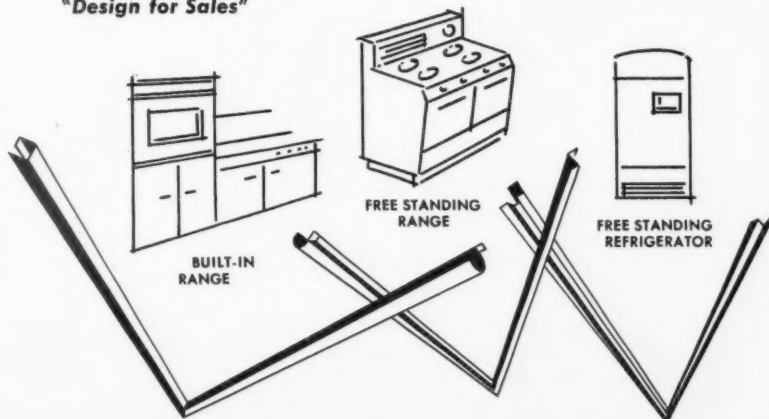
WITH REDALL METAL MOULDINGS



Whatever appliance or similar fabricated metal product your company produces, Redall Industries can answer your moulding needs. We are specialists in metal moulding. We are also experienced in the use of pre-finished metals of various colors. We can form any rolled type of moulding: coil flat material up to  $\frac{1}{16}$ " thickness, roll coined material into sections, and roll patterns on metal. We have a wide variety of production mouldings to choose from or we can meet your requirements for custom designs.

In addition to having complete facilities for the production of metal mouldings Redall Industries provides facilities for assembly work, light stamping, and tool and die work. In addition, we can supply highly accurate stretch bending equipment and tools and rolls for roll-forming equipment.

Write today for  
"Design for Sales"



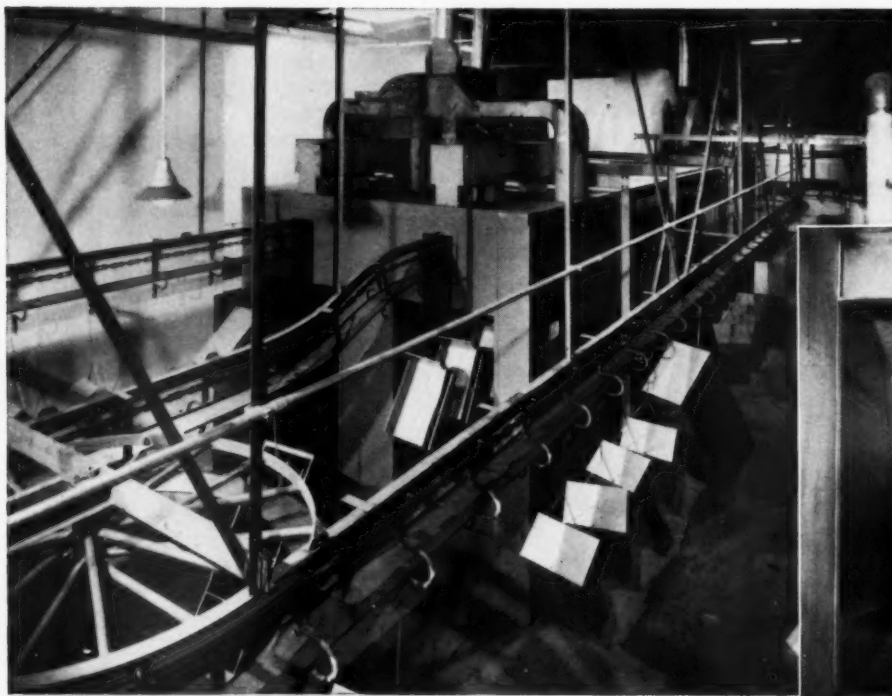
PRODUCTION AND CUSTOM MOULDINGS OF ALL TYPES

# Redall Industries

LEXINGTON 1, MICHIGAN



# THIS DESPATCH FINISHING SYSTEM PROVIDES MAXIMUM PRODUCTION with MINIMUM MANPOWER



Overhead conveyor (photo at left) carries component parts 500 feet through a three-stage washing cycle, a drying oven, a paint spray booth, and the bake oven shown here.

Spray booth (lower photo) where each part is painted from opposite sides, features two water curtains and an air replacement system.



## Semi Automatic Operation Speeds Work Flow for Office Furniture Manufacturer

Fifty thousand pounds a day production with only nine employees—that's the potential for the DESPATCH Finishing System recently installed in the new 37,000-square-foot Art Steel Company, Inc., plant at Los Angeles, Calif.

Consistent surface texture, even color, with a finish that is neither soft nor brittle and well bonded to the metal, are basic requirements for high quality in the manufacture of high quality steel office furniture. Only accurate timing and temperature controls, possible with DESPATCH equipment, are equal to the job. The custom-built installation shown, above, was planned to meet all requirements.

Occupying only one-sixth the total plant area, reliable DESPATCH equipment keeps production moving through each finishing stage with less than one hour required for the entire finishing operation.

Maybe you are launching a new product . . . or wish to pep up appearance of an existing product. Whether you sell to industry or Mr. and Mrs. Consumer, let DESPATCH's experience in evaluating, recommending and creating completely engineered finishing systems help solve your particular problems. There's a DESPATCH-trained resident engineer near you!



Write today for Bulletin 51

16 colorful pages on modern ways to achieve better finishes, faster production and smoother handling of metal products . . . at lower cost.

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OVEN  
COMPANY**

**DESPATCH**

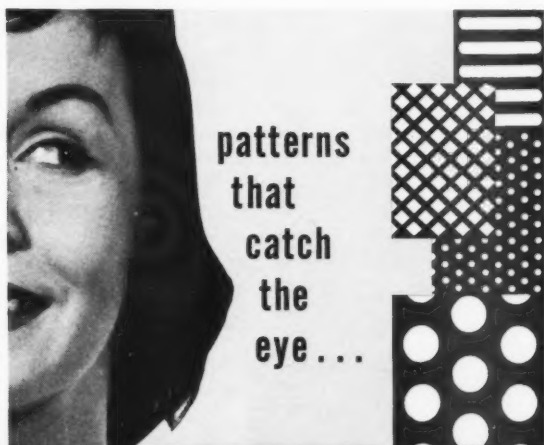
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Sales and Service in All 26 Principal Cities

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HELP YOUR HEART



patterns  
that  
catch  
the  
eye...

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Consumer appeal, functional beauty, and economy are part of your designs with Standard's Perforated Metals. Standard's complete selection of perforated patterns and custom pattern design service add the qualities that count at the point of sale! Specify perforated metal by Standard.

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CABINET HARDWARE • CATCHES

LATCHES • CASTERS • PLASTICS

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**NATIONAL LOCK COMPANY**

Rockford • Illinois

Industrial Hardware Division

## Industry news

→ from Page 77

radiant heat curtain wall panels can be effected, it is claimed, because of the elimination of the need for furnaces, boilers, pumps and piping, and the resultant increase of usable space. Operating costs were also reported to be low because of the efficiency of the new system, and the elimination of maintenance costs, including personnel. The actual saving, however, depends on the local cost of electric power compared with the cost of other sources of heat.

### RWMA Announces Contest for Papers on Resistance Welding

The Resistance Welder Manufacturer's Association will sponsor a contest to give interested persons an opportunity to publicize their work, development and research in the field of resistance welding.

\$2000.00 in prizes will be awarded for winning papers entered in Special Projection Welding or General Resistance Welding classifications.

The contest closes September 15, 1958. Applications should be received by July 1, 1958. For contest rules and author's application form, write to Dept. MPM, Resistance Welder Manufacturers' Association, 1900 Arch St., Philadelphia 3, Pa.

### Porcelain Enamel Magazine Features Wide Application

The unusual versatility of porcelain enamel, both in application and physical characteristics, is spotlighted in the current issue of the Porcelain Enamel magazine, Vol. 6, No. 1.

The cover story by Penny Edwards, PEI's Home Service director, describes the vital role this modern finish plays in today's kitchens by protecting, as well as adding, color, beauty, and durability to so many of the appliances and cooking accessories that aid the homemaker.

Design engineers and manufacturers will also find this issue of Porcelain Enamel of particular interest to their respective fields. A two-page, center spread story describes a number of the physical and chemical properties of porcelain enamel, and shows how these properties are being used to advantage on a variety of industrial and consumer products.

Free copies of the Porcelain Enamel magazine, Vol. 6, No. 1, can be obtained from the Porcelain Enamel Institute, 1145 Nineteenth St., N.W., Washington 6, D. C.

### N.E.W. Officers Elected

N. J. MacDonald, president of The Thomas & Betts Co., Elizabeth, N. J., was elected chairman of the National Electrical Week committee at the committee's semi-annual meeting in Chicago recently. He succeeds Merrill E. Skinner, vice president and director of sales of Union Electric Co., St. Louis, who has led the development of National Electrical Week as an all-industry event for the past three years.

The committee reviewed reports on the 1958 observance of NEW, elected officers, and approved preliminary plans

for the next annual observance, scheduled for February 8-14, 1959.

MacDonald said he regarded National Electrical Week as an outstanding opportunity for all segments of the electrical industry — power suppliers, manufacturers, distributors, contractors, dealers, inspectors, wiremen, and electrical leagues — to further their basic educational and promotion programs.

Other NEW committee officers elected include: Col. S. R. Todd, past president of International Association of Electrical Inspectors, vice chairman; Arthur W. Hooper, executive director of the

## "Our finishing output up 30%, quality improved—costs cut..."

says Mr. E. A. Nelson, General Manager,  
Imperial Lighting Products Company.



**THE PROBLEM:** To improve the finishing operation for aluminum light fixture parts. Production was continuous but composed of relatively short runs for varying shapes and sizes.

**THE SOLUTION:** A Binks semi-automatic spindle spraying machine. Rotating vertical spindles, mounted on a conveyor, spin the parts to be finished. As the parts pass the operator he coats them quickly and uniformly using a manually operated Binks Model 18 spray gun. The spindles are spaced to accommodate large parts on alternate

spindles or smaller parts on every spindle.

**THE RESULTS:** So gratifying, according to Mr. Nelson, that a second Binks semi-automatic spindle machine was installed. Both machines have more than paid for themselves. A third, completely automatic, machine has been ordered for production-rate finishing of small parts.

- Automatic parts handling speeds production
- Finish is uniform
- Material waste minimized
- Rejects reduced



**Free analysis and engineering help:** If you would like to know what production rates or costs you could obtain with Binks semi-automatic or automatic spraying machines, Binks research department will run actual test on your products and supply you with a detailed report. Just call your nearest Binks Branch Office or write us direct.

General view of the semi-automatic machines.



National Association of Electrical Distributors, secretary; and Harold A. Webster, president of T. Frederick Jackson, Inc., treasurer.

### Roper Gas Ranges Offer Three Different Top Burners

Three types of top burners are offered on 1958 Roper gas ranges, according to the manufacturer, Geo. D. Roper Corp., Kankakee, Ill. "Tem-Trol" automatic, "Circle-Simmer," and "Alumo-Jet" burners are said to meet every cooking need and fit all budgets.

Developed by Roper in 1956, the

"Tem-Trol" burner adjusts itself to maintain any pre-set temperature, within 2°. Its extreme accuracy is credited to a precise heat detector, which reacts to any change in utensil temperature, increasing or decreasing the flame as needed, it is stated.

Extremely wide heat selection, with no "gaps" between heats, is a major advantage of the "Circle-Simmer" speed top burner, according to the company. Introduced last year, the "Circle-Simmer" burner spreads the flame at low heat settings over a wide area of the utensil bottom, ending "hot spots".



ROPER  
"TEM-TROL"  
AUTOMATIC  
CONTROLLED-HEAT  
TOP BURNER



ROPER  
"CIRCLE-SIMMER"  
SPEED  
TOP BURNER



ROPER  
"ALUMO-JET"  
TOP BURNER

New this year, Roper's "Alumo-Jet" top burner features a cold forged aluminum cap, precision drilled ports, and a new porcelain-enameled steel venturi tube. Lightweight, maximum cleaning ease and efficient, smooth flow of the gas-air mixture are achieved with the new burner, Roper spokesmen state.

### USCM Builds Facility

President Charles H. Lundquist, in cooperation with Manhattan Beach, Calif. Mayor Robert T. Warner, inaugurated construction work recently on a fifty-per cent expansion in plant size at West Coast facility of United States Chemical Milling Corp. The latest addition in space, Plant No. 3, will house special facilities of USCM's recently-acquired forming and shaping subsidiaries — Missile-Air and Hydro-Metal Spinning corporations.

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Faster finishing of higher quality is made possible by this Binks installation at Imperial Lighting Products Company, Latrobe, Penn.

**Ask about our spray painting school. Open to all...  
NO TUITION...covers all phases**

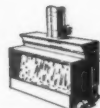
# Binks

EVERYTHING FOR

SPRAY PAINTING



SPRAY GUNS



SPRAY BOOTHS



AIR COMPRESSORS

**Binks Manufacturing Company**

3122-40 Carroll Ave., Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

# NEWS about Suppliers

## Begin Construction of New Sinter Plant

The Youngstown Sheet and Tube Co. recently broke ground for a new sintering plant in another expansion step at its Indiana Harbor Works, East Chicago, Ind.

When completed sometime during the spring of 1959, the sintering unit will be one of the most modern in the steel industry, it is reported, and will have a capacity to produce 4,200 net tons of sinter product daily with provisions for doubling the output later with additional equipment.

Among the modern design features of the plant will be ore screening equipment, dust collectors, a television system, automatic mixing, sensing and logging devices for controlling the sinter mixes, scales for weighing the materials conveyed through the operation, and an ignition furnace.

## Ross Engineering to Build New Chicago Office

The J. O. Ross Engineering Div., Midland-Ross Corp., has completed plans for construction of a new Chicago office building to be located in suburban Mt. Prospect, Ill. Ross Engineering designs, fabricates, and installs air process systems used in industrial heating, drying, and curing operations in such diversified fields as the metal finishing, paper, rubber, plastics, automotive, textile, and foundry industries.

The new 12,500 sq ft building, scheduled for completion in Sept., 1958, will house engineering and office personnel servicing the Ross midwest area and

## Castle & Co. Distributors for Olin Aluminum

A. M. Castle & Co., Chicago, has been appointed a national distributor for Olin Aluminum, Walter F. O'Connell, senior vice president, Olin Mathieson Chemical Corporation, announced recently.

Olin Aluminum is the trade name for aluminum produced by Olin Mathieson. Completion of additional production facilities this year will make Olin Mathieson the country's fourth largest aluminum company, it is reported.

The Castle firm will distribute all Olin Aluminum industrial products including sheet, plate, extrusions, rod and bar. Products now in production have been shipped to the company at the start of the second quarter of this year. As other products are produced later this year, distributors' inventories will be diversified and contain the complete line.

## Republic's Stainless Output Passes 60 Million Square Feet

Republic Steel Corporation's Alloy Steel Division, Massillon, Ohio, a major producer of stainless and alloy steels, has just officially passed the 60-million mark in the square footage of stainless sheet shipped from their wide Sendzimir mill since the mill began to roll out the gleaming metal. Plant statisticians estimated that the 60 million square feet of stainless logged thus far would pave a 100-foot-wide highway 110 miles long.



Clyde Roberts, sales manager of Republic Steel's Alloy Steel Div., and Oscar Bamberger, Central District operating manager, take an "official look" at the roll of stainless steel which contains the 60-millionth square foot of the gleaming metal to be shipped from Alloy Steel since it began operations.

## Dahlstrom Machine Works Announces Representatives

Dahlstrom Machine Works, Inc., 4227 W. Belmont Ave., Chicago 41, Ill., manufacturers of high speed strip and sheet fabricating equipment, announces the appointments of Moehlenpach Engineering Inc., 1315 S. Vandeventer Ave., St. Louis 10, Mo., and Butcher, Carter & Preston, Inc., 6635 Navigation Blvd., Houston, Texas, as their exclusive representatives.

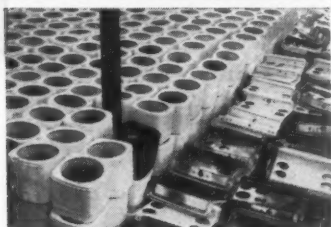
## Cowles Appoints Wagner Bros

Cowles Chemical Co., Cleveland, Ohio, has appointed Wagner Bros., Inc., Detroit, Mich., distributors for the complete line of Cowles metal finishing chemicals. Announcement of the appointment was made by C. C. Clabaugh, manager of Cowles metal finishing chemicals department. Stocks of Cowles products will be carried by Wagner at their various warehouse points, and Cowles sales and technical service personnel will work closely with the local representatives of Wagner.



# D-ENAMELING\*

is more economical  
than ever....



Once D-Enameling was a temporary expedient which appliance manufacturers used to stretch critical steel supplies. But that day is gone! Now, the nation's leading appliance manufacturers consider D-Enameling a permanent part of their manufacturing picture. D-Enameling has come of age . . . has assumed its role as a routine step in appliance manufacturing. The reason is simple—D-Enameling is a money saver! D-Enameling transforms scrap loss into profit dollars.

**these industry leaders  
know from experience that  
D-Enameling transforms scrap  
loss into profit dollars**

Airlines

Home Laundry Appliance  
Manufacturers

Job Enameling Plants

Range Manufacturers

Refrigerator Manufacturers

Sanitary Ware Manufacturers

Sign Manufacturers

Space Heater Manufacturers

Water Heater Manufacturers

\*D-Enameling is a patented process

## New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois



## INDUSTRY PERSONALS

**William Crooker** has been named chief engineer of Western zone of Mueller Climatrol, Div. of Worthington Corp., it has been announced.

**Norman C. Kreuter**, vice president of the Geo. D. Roper Corp., has announced the appointment of **Walter E. Bimm** to the company's field sales staff. Kreuter states that this appointment is part of a long range program in the expansion and development of the company's sales organization.

Bimm, since 1949 assistant sales manager of the Geo. D. Roper Corp., now of Kankakee, Illinois, will cover the state of Illinois outside of Chicagoland.

CROOKER



BIMM



The resignation of **John L. Bricker**, vice president of Whirlpool Corp., was announced recently by Elisha Gray II, president. Bricker will join Kenyon & Eckhardt, Inc., national consumer advertising agency for Whirlpool, as vice president of west coast operations.

Bricker joined Whirlpool as director of marketing in March, 1956. He was elected a vice president in November, 1956.

**Ward L. Heath** has been named purchasing agent for the Detroit plant of Kelvinator division, American Motors Corp. Announcement of Heath's promotion was made by W. F. Poupard, works manager at Detroit. He succeeds **Earl Ramsey**, who was promoted to the staff of the vice-president and general manager of Kelvinator.

**R. H. Coin**, president, Ingram-Richardson, Inc., Frankfort, Ind., announces the appointment of **Clyde D. Woodruff** as plant superintendent of Ingram-Richardson, Inc., Frankfort, Ind., effective March 20th. Woodruff has been associated with the firm for twenty-five years and replaces D. R. Thayer who died on March 12th.



HEATH



WOODRUFF

**T. R. Smith**, vice-president in charge of research and development for The Maytag Co., Newton, Iowa, has been appointed to the research committee of the National Association of Manufacturers.

The appointment of **S. E. Sweet** as general manager of the refrigeration division of the Whirlpool Corp. has been announced by Jack Sparks, director of marketing.

Sweet came to Whirlpool from the Gibson Refrigerator Co., where he has served as executive vice president since May, 1956. Before that, from 1934 to 1956, he was vice-president in charge of private brand sales, manager of private brand sales, and a divisional sales manager.

**"PRE-CLEANING PAYS OFF!"**

WE'RE GETTING A PRETTY UNEVEN ETCH ON OUR ALUMINUM STRUCTURAL PIECES, DAVE. THE SALES DEPARTMENT IS HOWLING BECAUSE OF THE FINISH WE'RE GIVING THEM.

I RECOMMEND USING A PRE-CLEANER, DAVE. TRY RUNNING YOUR PARTS THROUGH PENNSALT CLEANER MC-1® BEFORE ETCHING. IT'S GREAT FOR SETTING UP THE SURFACE SO THAT IT'S CLEAN OF SOIL, OIL AND UNEVEN OXIDE.

THAT MEANS AN EXTRA OPERATION, JIM.

BUT IT WON'T ADD TO COST. PENNSALT CLEANER MC-1 GIVES A LIGHT ETCH ITSELF. YOU CUT TIME IN THE ETCH BATH. AND YOU USE LESS ETCHANT, BECAUSE IT DOESN'T HAVE TO REMOVE SOIL.

## SUPPLIER PERSONALS

**John M. Welch** has been appointed director of field sales for Olin Aluminum, Walter F. O'Connell, senior vice president, Olin Mathieson Chemical Corp., announced recently. He had been Chicago regional sales manager for Olin Aluminum.

The appointment of **Robert A. Brayton** as managing director of Armco Australia Pty. Ltd. has been announced by A. R. Edwards, president of The Armco International Corp.

Brayton has been managing director of the Armco Tekko Co., Armco International's subsidiary in Japan. He will be succeeded by **Yukiya Mori**, Edwards stated.

WELCH



BRAYTON



**Frederick J. Close** has been named general manager of the sales development and commercial research divisions of Aluminum Company of America.

Close is well known in the aluminum industry for his part in the conception and execution of the aluminum-skinned Alcoa Building, early example of modern curtain-wall construction in multi-story structures. He also has been active in promoting the broader use of aluminum, in both new and established products, by interesting designers in advantages offered by the light weight metal.

**James F. McCartney**, Pittsburgh, Pa., has been appointed assistant to the president of the O. Hommel Co., according to Ernest M. Hommel, president.

McCartney brings with him a background of broad experience in sales work, and will aid in promoting and expanding the company's activities in all phases of the ceramic industry. In this capacity, he will work very closely with Hommel's sales and service representatives throughout the United States, with particular attention to the frit division.

Before joining Hommel, McCartney was vice president and general sales manager of Duff-Norton Co.



CLOSE



MCCARTNEY

**Robert J. Huber**, president, Michigan Chrome and Chemical Co., Detroit, Mich., has announced the appointments of **Hans Neumann** as a research supervisor on the staff, and **Arthur C. Lansing** as manager, of the laboratory of the Chemical Division of that company.

**Ben D. Landes**, veteran of nearly 12 years experience in the industrial ceramics field, has been employed as general sales manager for Coors Porcelain Co., Golden, Colo., according to a recent announcement by Joseph Coors, president.

Landes will be responsible for sale of Coors high density ceramic grinding balls, mill lining brick, all types of industrial ceramics for mechanical and electronic applications, and chemical and scientific ware.

HERE'S A MAN WHO MIGHT HELP US . . . JIM CARLIN FROM PENNSALT. HE HELPED US SET UP AN ETCHING SYSTEM.

I NOTICED ON MY WAY THROUGH THE SHOP THAT YOU'VE SWITCHED TO A HEAVIER GRADE OF OIL FOR DRAWING. THAT'S PROBABLY WHAT'S CAUSING THE TROUBLE. SOMETIMES, ALUMINUM HAS TO BE PRE-CLEANED OR YOU'LL GET AN UNEVEN ETCH.

WHAT WOULD YOU RECOMMEND, JIM?

## LATER THAT MONTH...

HOW'S THAT FOR A SMOOTH SATIN ETCH, JIM? COMPETITION WILL HAVE TO GO SOME TO MATCH THAT.

SMOOTH AS A KITTEN'S EAR, DAVE. PENNSALT CLEANER MC-1 SURELY HELPS YOU GET A BETTER JOB OF ETCHING WITHOUT INCREASING ETCH TIME OR COST.

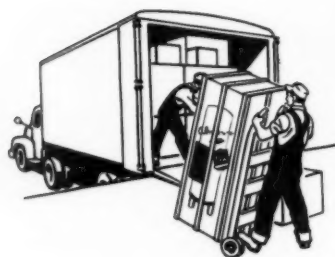
Whenever metal surface preparation gives you rough problems, call your Pennsalt salesman. He can help you to "A BETTER START FOR YOUR FINISH"

METAL PROCESSING  
DEPARTMENT 639  
PENNSALT CHEMICALS CORP.  
3 Penn Center, Philadelphia 2, Pa.



**A better start for your finish**

This Clayton & Lambert water heater is properly protected for safe shipment through the use of a Watkins Container.



## The Finest Products Go In Watkins Containers

They are preferred because of:

1. Low Cost
2. Stacking Strength
3. 75% Assembled—Upon Receipt
4. Ease of Assembly
5. Easy Handling
6. Minimum Storage Space
7. Protection from Dust and Dirt

THESE COMPANIES BUILD WATKINS CONTAINERS



*Custom Protection . . .*

THE **WATKINS CONTAINER** MANUFACTURERS

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**ILLINOIS BOX & CRATE CO.**  
811 Center Street, Plainfield, Illinois

**KIECKHEFER BOX & LUMBER CO.**  
1711 W. Canal St., Milwaukee 3, Wis.

**LEWISBURG CONTAINER CO.**  
243 Singer Street, Lewisburg, Ohio

**LOVE MFG., INC.**  
P.O. Box 240, Wichita, Kansas

**UTILITY CRATE CORPORATION**  
2019 Imperial St., Los Angeles 21, Calif.





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### editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

### A Certified Laboratory Wholeheartedly Supports NST Program

Mr. H. D. Chase, Editor  
Metal Products Manufacturing  
Dana Chase Publications  
Elmhurst, Illinois

Dear Mr. Chase:

In reply to your letter of February 3rd with reference to the National Safe Transit Pre-Shipment Testing Program, our company has been one of the early supporters of this program and we have been pleased to observe its continuing growth in scope and importance. In fact, our customers find the service of our Certified NST Laboratory a useful and valuable aid in their packaging development program.

We believe the National Safe Transit program has had unique success in winning the support of all parties concerned with the efficient and proper packaging of merchandise. It enables the shipper to determine the adequacy of his package to resist normal hazards of handling and shipment, and the NST Program provides a means of certification which is acknowledged and respected by all com-

mon carriers and freight handlers. We believe the NST Certification has real significance.

Our customers advise us that loss and damage claims have been reduced to a minimum through adherence to NST standards. In addition, product and package improvements have been brought about as a result of laboratory tests and standards used.

Recognition of the inter-dependence of product and container has become widespread due to the missionary work of the NST Program. Improvements in packaging efficiency have often been accomplished with very worthwhile savings in packing costs.

We appreciate the support and leadership which you have given the NST Program and assure you of our continued support.

Yours very truly,

Clarence F. Smith  
First Vice President  
Inland Container Corp.  
Indianapolis, Ind.

### Packaging Show Scheduled

The evolution of packaging from an art into a science will be underlined at the American Management Association's annual packaging show and conference in New York City the last week of May. The Twenty-Seventh National Packaging Exposition is scheduled to be held at the New York Coliseum, May 26-30, and the conference at the Hotel Statler, May 26-28.

John A. Warren, technical adviser to the American Management Association's packaging division, points out that manufacturers of industrial and consumer goods are realizing the importance of packaging, both in selling and in protecting the product. Their efforts to find the best packages for their products at economical cost have sparked extensive research and development by suppliers of packaging materials, equip-

ment, and services. The research results of both package users and package suppliers since World War II are ushering in a new era of packaging, according to Warren.

This year's exposition, the first five-day show in the history of the event, will occupy all four floors of the New York Coliseum. Exhibits will span the entire range of the packaging spectrum, from design ideas through materials and machinery to finished packages. The materials, equipment, and services on display will demonstrate the growing technical know-how of packaging suppliers, and the varied ways in which package users are applying that know-how.

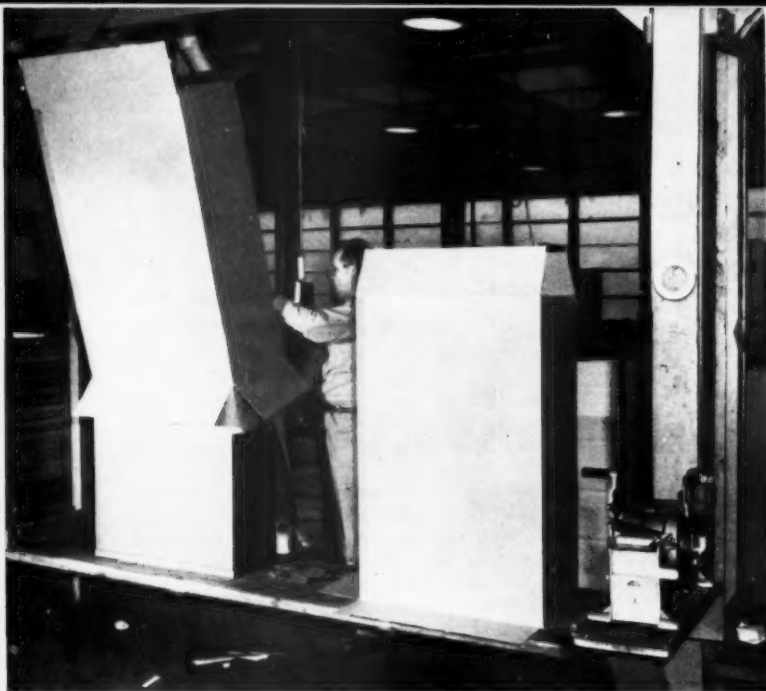
### Heavy duty corrugated containers for major appliances

A 28-page brochure covers the use of heavy duty corrugated containers for gas ranges, automatic washers, furnaces, water heaters, air conditioners, etc.

Included in the brochure are reproductions of industrial trade magazine case history articles on products such as Hotpoint, Hotstream, Lindeman & Hoverson, Fresh'nd-aire, and Rheem.

Specific cost savings and materials handling characteristics are documented.

For a copy of the brochure, write on your letterhead to Readers Service Dept., MPM, York St. at Park Ave., Elmhurst, Ill.



**SAFE TRANSIT** really means something to Stoner Mfg. Corp., Aurora, Ill. This company turns out a complete line of automatic merchandising machines for vending candy, cigarettes, coffee, and hot drinks. These machines are equipped with coin changers and intricate working mechanisms, and must be packaged very carefully. The packaging methods and materials at Stoner were specifically planned for automatic vending machines. Many of the fronts of the machines are

equipped with mirrors. External knobs and levers must be protected, also. An ingenious cushion made up of corrugated cardboard and wood is placed against the front of the machines to provide adequate protection of these parts. Larger machines are protected on the front by bolting the rear of each to 2 by 4 in. pieces of wood that are part of the back of the crate. The front of the crate, with an ample cushion of corrugated cardboard, forms an effective protection medium.

#### Two types of packaging used

Basically, two sizes of vending ma-

◆ *Wood-reinforced corrugated cardboard "cushions" are placed against the fronts of the machines, and then the corrugated tube with flaps for the ends is put over the unit.*

(Center) *Machines are placed on specially-made hoists powered by electric motors. The hoists are used to lift the machines to easy work levels to wrap with wax-coated kraft paper.*

◆ *A plywood-type wire-bound box is then wrapped around the package, the whole tilted by means of a cradle-like frame to a horizontal position, sealed shut, and then placed upside down to insert a spacer at the top of the container. The end is then sealed.*

## Packaging automation

this company uses both a cleated  
wirebound box p

EXCLUSIVE MPM PHOTOS



chines are produced at Stoner. The candy, beverage and cigarette machines are made in each size. The hot drink machines are built to stand on legs about three feet in height, and have cabinets 18 in. deep by 36 in. high by 28 in. wide. The large machines measure approximately 24 in deep by 72 in. high by 30 in wide.

Separate methods are used to package each of the sizes of machines. For the smaller machines the method is as follows: Four machines are placed on two specially-made hoists powered by electric motors. The hoists are used to lift the machines to easy work levels to wrap with wax-coated kraft paper, place



## ation merchandising machines

leated container and a  
and box to package two sizes of machines



*The two sides of the box are then nailed into position, and a reinforcing piece of wood is then placed between the sides of the box against the machine, and nailed into place.*



of the container and seal the end shut. Plywood-type ends with wooden cleats are placed at each end of the package for complete protection and fastened to the sides of the box.

### Cleated box on larger machines

The larger machines are packaged in a different manner. These boxes are a cleated, plywood-type, selected to give maximum shipping protection. A heavy wooden base is placed beneath the machines and bolted to the legs. The back panel of the box is fitted in place, and bolts are used to fasten the machine to a 2 in. by 4 in. piece of wood that is an

integral part of the back panel. Kraft paper wads are inserted inside the machine next to vital mechanisms to provide maximum protection for these parts. The entire machine is then covered with wax-impregnated kraft paper. The two sides of the box are then nailed into position and a reinforcing piece of wood is placed between the sides of the box against the machine and nailed in place.

The front panel is then nailed in place, a cardboard cushion placed at the top of the machine, and the top nailed into place to complete the package.

*Wood-framed corrugated cardboard spacers are placed at the top of the machines for additional protection, and the top is then sealed.*

wood reinforced corrugated cardboard "cushions" against the fronts of the machines, and then slide the corrugated tubes with flaps for the ends over the machines. Each machine is then slid off the beds of the hoists to the floor for the final packaging steps.

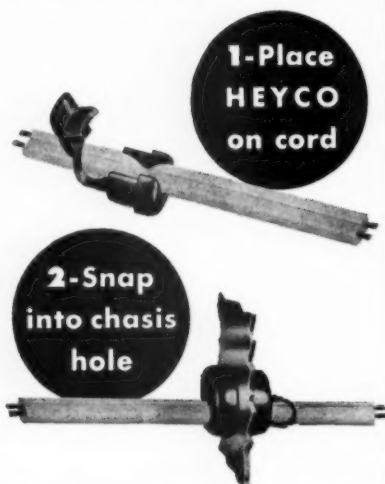
### Wirebound box used

Wood framed, corrugated cardboard spacers are placed at the top of the machines for additional protection, and then the top is sealed. A plywood-type wirebound box is then wrapped around the package, the whole tilted by means of a cradle-like frame to a horizontal position, sealed shut and then placed upside down to insert a spacer at the top





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## METAL PRODUCTS STATISTICS

a current report on available production, shipment and sales figures for important products in the appliance and fabricated metal products manufacturing field

**GAS WATER HEATERS** — February shipments 211,500, 1.6 per cent over '57; January-February, 448,600, 6.0 per cent over '57.

**GAS RANGES, BUILT-IN** — February shipments 13,500, 8 per cent over '57; January-February, 26,400, 1.9 per cent over '57.

**GAS RANGES, FREE STANDING** — February shipments 123,900, 16.9 per cent below '57; January-February, 240,900, 15.6 per cent below '57.

**GAS FURNACES** — February shipments 42,800, 2.6 per cent over '57; January-February, 91,600, 2.5 per cent over '57.

**GAS FIRED BOILERS** — February shipments 5,200, 0 per cent over '57; January-February, 10,400, 0 per cent over '57.

**GAS CONVERSION BURNERS** — February shipments 6,700, 3.1 per cent over '57; January-February, 14,000, 1.4 per cent over '57.

**ELECTRIC REFRIGERATORS** — January shipments 206,100, 32.5 per cent below '57.

**ELECTRIC FREEZERS** — January shipments 63,000, 7.9 per cent below '57.

**ELECTRIC RANGES, BUILT-IN** — January shipments 30,200, 8.2 per cent over '57.

**ELECTRIC RANGES, FREE STANDING** — January shipments 78,800, 31.0 per cent below '57.

**ELECTRIC WATER HEATERS** — January shipments 61,700, 9.6 per cent over '57.

**ELECTRIC DISHWASHERS** — January shipments 30,400, 18.3 per cent below '57.

**ELECTRIC FOOD WASTE DISPOSERS** — January shipments 40,800, 18.0 per cent below '57.

**COMBINATION WASHER-DRYER** — February factory sales 12,150, 40.0 per cent below '57; January-February 25,489, 34.0 per cent below '57.

**WASHERS, AUTOMATIC & SEMI-AUTOMATIC** — February factory sales 200,189, 18 per cent below '57; January-February, 385,336, 24 per cent below '57.

**WASHERS, WRINGERS & ALL OTHER** — February factory sales 62,910, 18 per cent below '57; January-February 115,916, 21 per cent below '57.

**ELECTRIC DRYERS** — February factory sales 57,651, 25 per cent below '57; January-February, 126,038, 32 per cent below '57.

**GAS DRYERS** — February factory sales 20,927, 44 per cent below '57; January-February 51,170, 32 per cent below '57.

**IRONERS** — February factory sales, 1,778, 53 per cent below '57; January-February, 4,152, 49 per cent below '57.

**VACUUM CLEANERS** — February factory sales 225,631; January-February, 491,120, 15 per cent below '57.

**METAL FURNITURE** — February shipments 4 per cent below '57; January-February, 2 per cent below '57.

**TELEVISION** — January production 433,983. 5 per cent below '57.

**RADIO\*** — January production, 1,026,527, 6 per cent below '57.

**COMPRESSOR BODIES** (Including Automobile Units) — Shipments for December, 223,456; January-December 3,956,505, 12 per cent below '56.

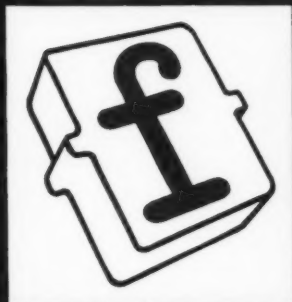
**STEEL SHIPPING BARRELS & DRUMS** — December shipments 2,323,640, 20 per cent below '56; January-December 34,748,342, 8 per cent below '56.

**STEEL PAILS** — December shipments 4,442,810, 10 per cent below '56; January-December, 73,678,085, 11 per cent below '56.

**TYPEWRITERS** — February factory shipments 64,026; January-February, 143,743.

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.

\*Includes automobile radios.



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## Presstime News

### Newcomb-DeVilbiss Purchases Part of Peters-Dalton Div.

The Newcomb-DeVilbiss Co., a subsidiary of The DeVilbiss Co., has purchased certain assets of the Peters-Dalton Div. of Detroit Harvester Co., and has undertaken completion of the majority of contracts which that organization was performing. This arrangement was made effective April 1, 1958.

### G-E Makes Air Conditioning a Department of Appliance Div.

According to a recent announcement by James H. Goss, vice president of General Electric's consumer products group, the business personnel and facilities of its former air conditioning division has been made an operating department of the company's appliance and television receiver division. Goss emphasized that no changes in G-E's air conditioning distribution channels are contemplated. Carl A. Salmonsens has been named general manager of

the G-E air conditioning department, it was announced by C. K. Rieger, G-E vice president and general manager of the appliance and TV receiver division. He succeeds R. H. Jones, who is now directing special studies for the company.

**D. S. Gibson** has been elected vice president, purchasing, and **T. F. Griffin** has been named general manager, purchases, Worthington Corp., Harrison, N. J.

**A. F. Meyer** was recently appointed Cleveland district sales manager, Kaiser Aluminum & Chemical Sales, Inc.

**Robert Gwinn**, president of Sunbeam Corp., has been elected a member of the board of governors of the National Electrical Manufacturers Assn., according to an announcement by Joseph F. Miller, NEMA's managing director. Gwinn succeeds B. C. Neece, president of Landers, Frary and Clark.

Election of **Edward H. Eaton** as treasurer of Pittsburgh Plate Glass Co. has been announced by David G. Hill, president. Eaton succeeds the late John G. Fleming.

The American Chemical Paint Co., Ambler, Pa., has announced the appointment of **Richard F. Hurley** as technical sales representative for their metal working chemicals division. He will be attached to the St. Joseph, Mo. office, and his area of activity will include Iowa, Minnesota, North and South Dakota, Colorado, and Nebraska.

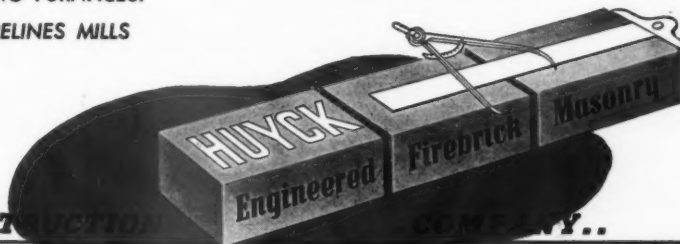
At a directors' meeting held recently by The Fostoria Pressed Steel Corp., Fostoria, Ohio, **Russell J. Carter** announced relinquishment of his post as president to become chairman of the board of directors. **Edward L. Bates**, vice president in charge of sales for the past 17 years, and a director of the firm, was named president.

**Robert W. Pierce** has been promoted to Boston district sales manager for the Olin Aluminum div. of Olin Mathieson Chemical Corp., John M. Welch, director of field sales, announced.

**M. F. Beisber** has been named president of Lonergan Coolerator Div., McGraw-Edison Co. He has been market research and distribution director for the parent firm's line material industries in Milwaukee, Wis.

**HUYCK** FURNISHES FIREBRICK MASONRY TO BUILD, REBUILD AND REPAIR ALL TYPES OF: ENAMELING FURNACES . . . FRIT SMELTERS . . . ALUMINUM, BRASS, LEAD SMELTERS . . . FORGE FURNACES . . . HEAT TREATING FURNACES.

**HUYCK** LINES AND RELINES MILLS



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AND  
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## ADVERTISERS' INDEX

PAGE	PAGE
AMERICAN NICKELOID CO. ....V-22	MACCO PRODUCTS CO. ....30
APOLLO METAL WORKS .....18	MARSCO MFG. CO. ....72
ARMCO STEEL CORP. ....1	MICHIGAN CHROME & CHEMICAL CO. ....68
ATWOOD VACUUM MACHINE CO. V-30	McLOUTH STEEL CORP. ....9
BINKS MFG. CO. ....80 & 81	MILLS PRODUCTS, INC. ....8
BRIDGEPORT THERMOSTAT DIV. ....6	NATIONAL LOCK CO. ....79
BURDETT MFG. CO. ....7	NEW PROCESS D-ENAMELING CORP.83
CHICAGO MILL & LUMBER CO. ...V-29	NORTHWEST CHEMICAL CO. ....24
CHICAGO VITREOUS CORP. ....31	PEMCO CORP. ....67
CONTROLS CO. OF AMERICA. 4th Cover	PENNSALT CHEMICALS CORP...84 & 85
COOK PAINT & VARNISH CO. ....V-2	PITTSBURGH PLATE GLASS CO. ....73
CRONAME, INC. ....V-31	PYRAMID MOULDINGS, INC. ....65
CUYAHOGA SPRING CO. ....68	RANSBURG ELECTRO-COATING CORP. ....70
V. W. DANIELSON MFG. CO. ....V-32	REDALL INDUSTRIES ....77
DESPATCH OVEN CO. ....78	REPUBLIC STEEL CORP. ....4 & 5
DETROIT CONTROLS CORP. ..2nd Cover	SORENG DIV., CONTROLS CO. OF AMERICA ....4th Cover
DRAKE MFG. CO. ....V-21	SOUTHERN SCREW CO. ....25
FAHRALLOY CO., THE ....91	STANDARD STAMPING & PERFORATING CO. ....79
FERRO CORP. ....19 & 20	TITANIUM PIGMENT CORP. ....15
GENERAL INDUSTRIES ....12	H. W. TUTTLE & CO. ....75
GRIGOLEIT CO., THE ....68	UNION STEEL PRODUCTS CO. 3rd Cover
HEYMAN MFG. CO. ....90	UNIVERSAL SCREW CO. ....17
O. HOMMEL CO., THE ....13	WATKINS CONTAINER MFRS. ASSN. 86
HUYCK CONSTRUCTION CO. ....91	WEIRTON STEEL CO. ....16
INGRAM-RICHARDSON, INC. ....2	WYANDOTTE CHEMICALS CORP. ...32
INLAND STEEL CO. ....11	YOUNGSTOWN METAL PRODUCTS CO. ....21
INTERCHEMICAL CORP. ....76	
L. R. KERNS CO. ....14	
LUX CLOCK MFG. CO. ....10	

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— equipped with 6 banks of 32 lights  
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Wattage per lamp 500 — presently  
equipped with 250 and 375 watt bulbs  
— 6 Westinghouse Type S Safety  
Switches — Style #1739310 — 2 Claroco  
Exhaust Fans and Motors — Clark  
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# PALLETAINERS

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The photo illustrations speak for themselves. No two applications alike, yet Palletainers readily provide the means for safer, more efficient handling, storage and transport.

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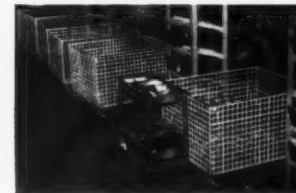
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